THE AMERICAN GOVERNMENT

Frederic J. Haskin

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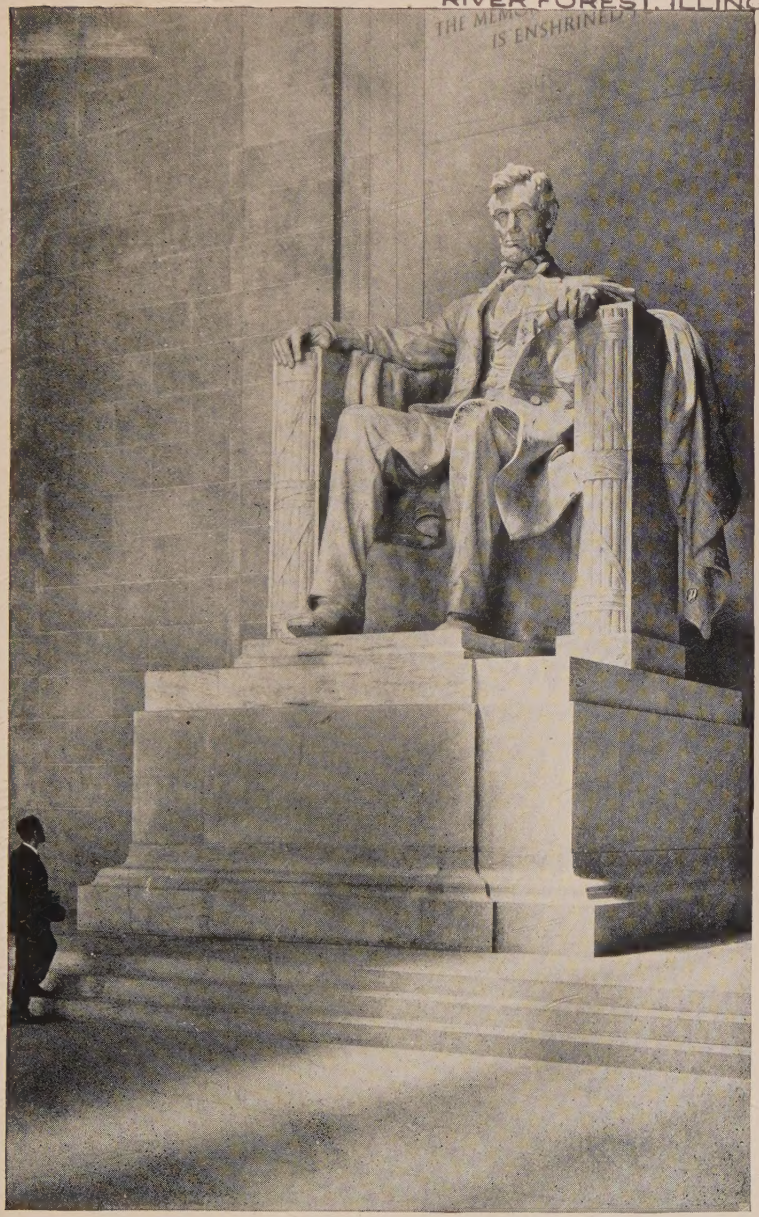

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The heroic statue of Abraham Lincoln, by Daniel Chester French, in the Lincoln Memorial. Up to June 30, 1923, nearly 40,000 people had visited this shrine.

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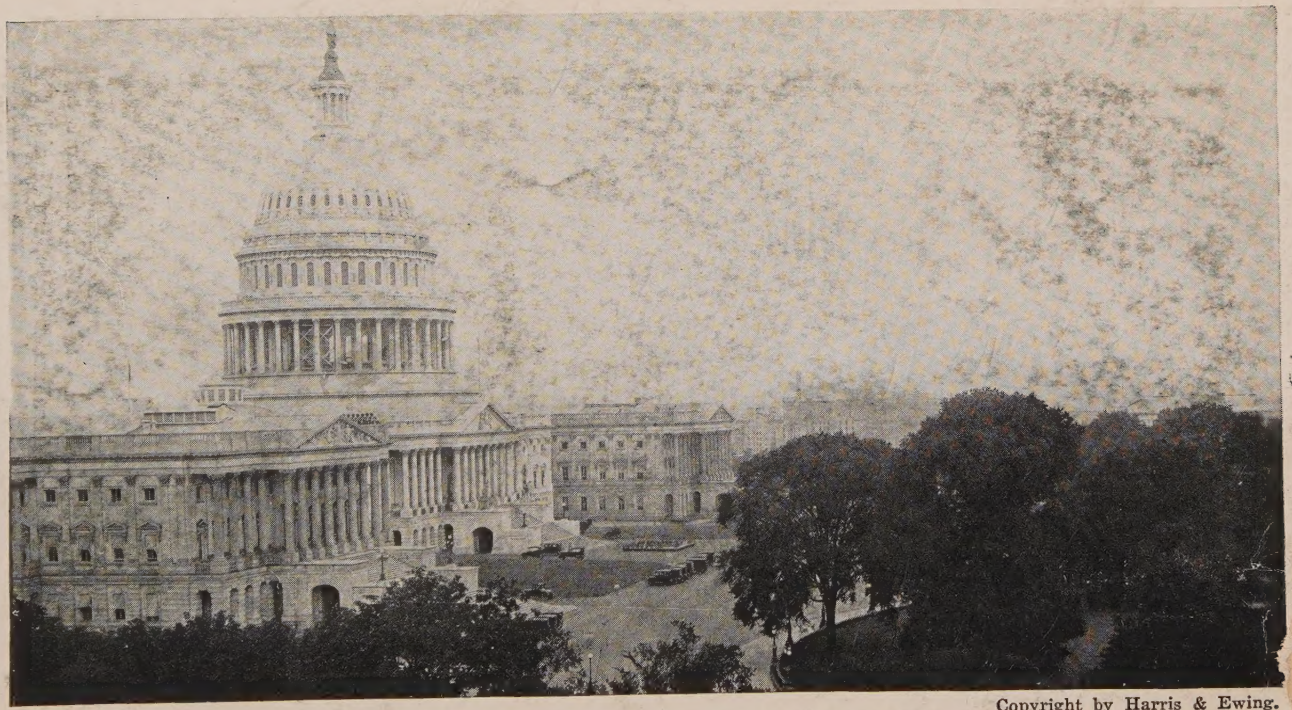

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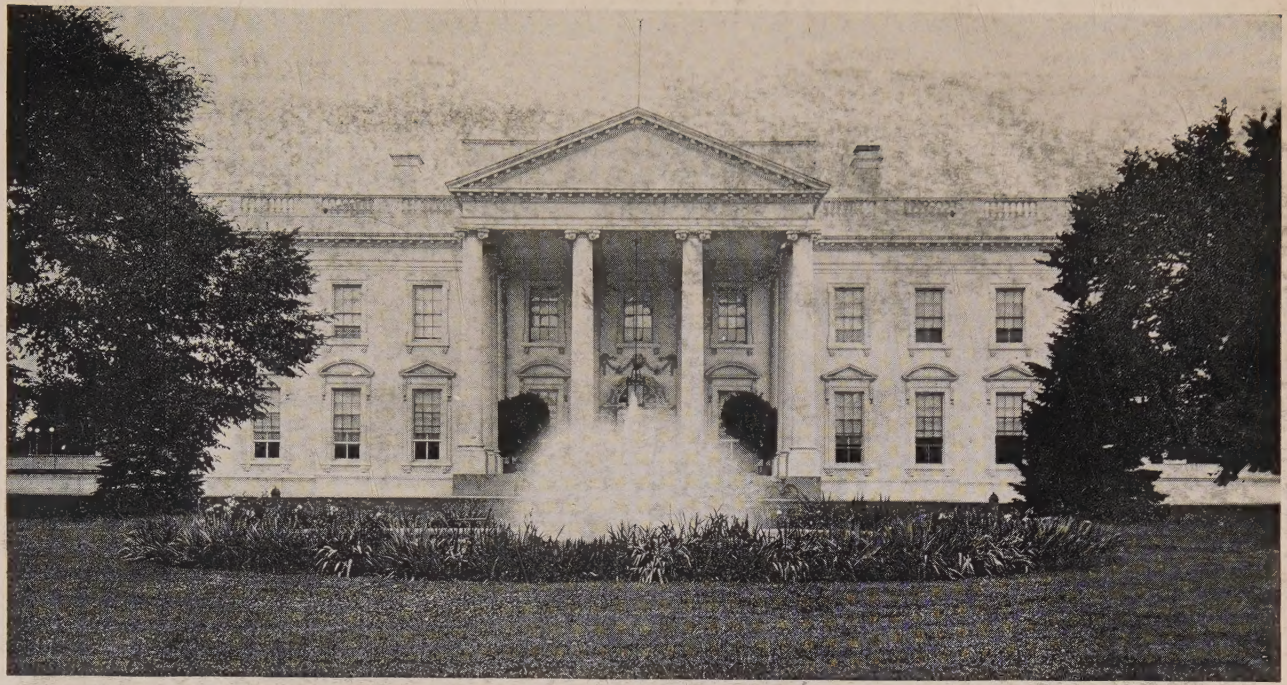
East front of the Capitol, showing the Rotunda portico where the Presidents are formally inaugurated. A new system of lighting illuminates the Capitol so that the Dome appears at night as though flooded with sunlight.



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Front view of the White House, showing the main entrance through which have passed the families of 29 Presidents and distinguised visitors from all parts of the world.

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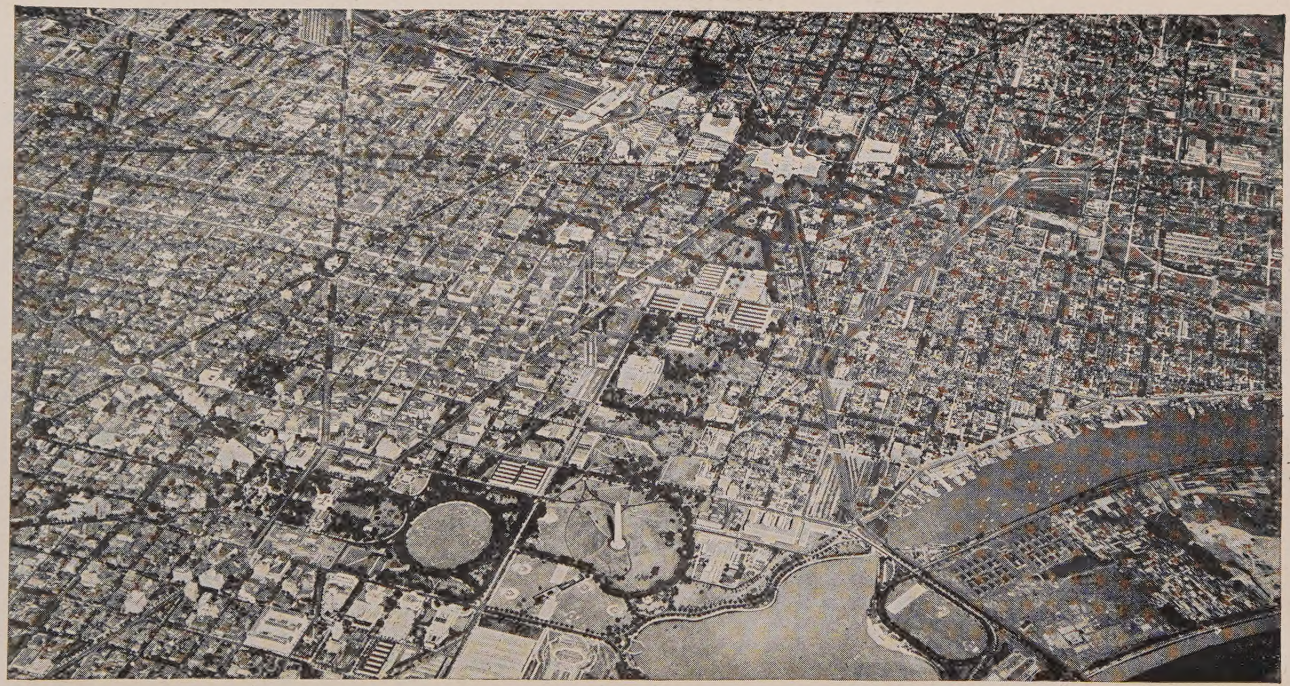
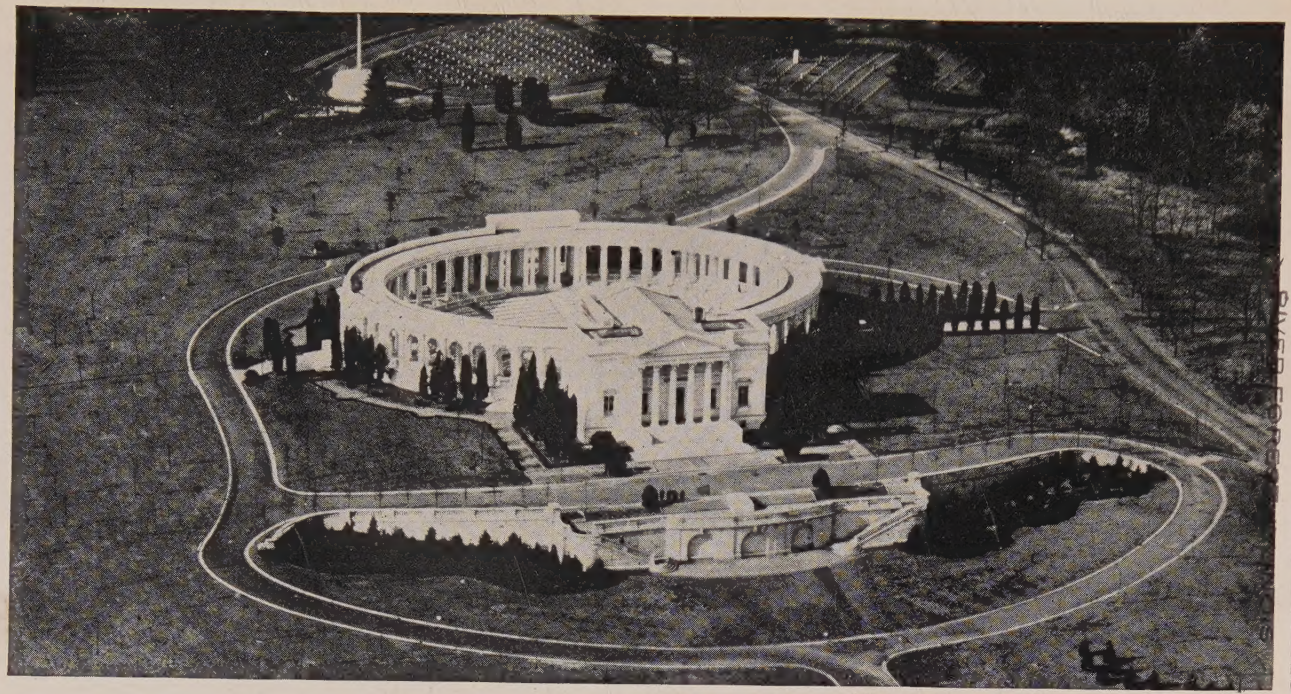


Official Photograph, U. S. Army Air Service.

View of Washington from 15,000 feet in the air. Aerial photography makes it possible to get a picture which shows clearly the plan of the city as laid out by Major L'Enfant under the direction of George Washington.



Official Photograph, U. S. Army Air Service.

Amphitheater at Arlington, Va., where memorial services are held for soldier dead. This is the most elaborate structure in any national cemetery. The tomb of the Unknown Soldier is shown in the center of the stone terrace in foreground. In the background are the graves of sailors lost in the sinking of the battleship *Maine*.

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Courtesy of the Department of Interior.

Section of a giant sequoia in Yosemite National Park. The life rings on this tree show that it is a thousand years old.

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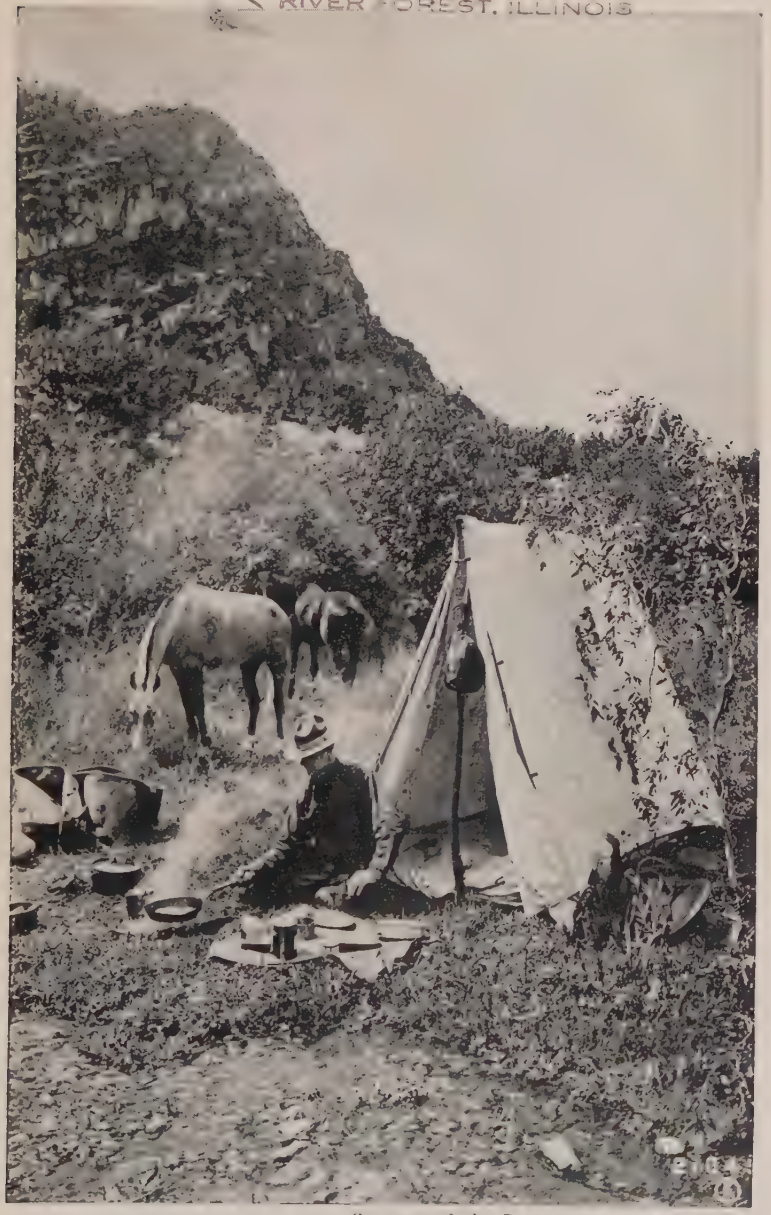

Courtesy of the Department of Agriculture.

A forest ranger, constantly on the alert for fires, is prepared to pitch camp any place where night overtakes him.

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Room in the Patent Office where patent attorneys, and others interested, search the files. Nearly one-half of all the patents issued by the civilized nations of the world have been issued by the United States Patent Office.

Courtesy of Smithsonian Institution.

This prehistoric armored dinosaur, on exhibit at the Smithsonian Institution, was well protected against the onslaught of his enemies. He was over 14 feet long, nearly 8 feet high, and probably weighed between 1 and 2 tons. Dinosaurs are an order of fossil reptiles found in rocks of Mesozoic age.

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Washington crypt underneath Capitol Rotunda. It contains the catafalque on which Lincoln, Garfield, McKinley, the Unknown Soldier, and Warren G. Harding lay in state.

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Treasury employees weighing coin. Whenever a new administration comes into office all money in the vaults of the Treasury is counted and checked. This audit usually takes several weeks.

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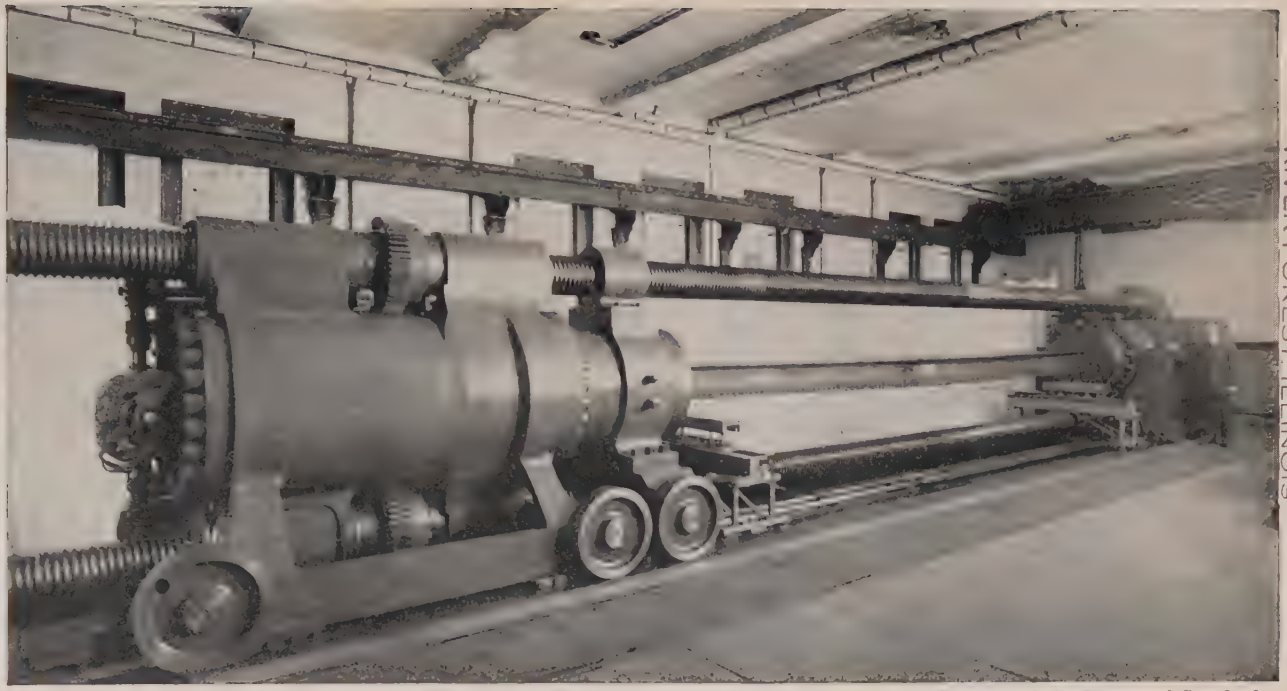
Sphere at the Bureau of Standards used for making comparisons of total light given out in every direction from different lamps. The slide rule at the operator's left makes all necessary calculations.



Courtesy of the Bureau of Standards.

World's finest precision testing machine, at the Bureau of Standards, crushing structural unit of a great bridge. The huge screws crush with a force of 2,300,000 pounds. As the load is increased the experts record every change of dimension at each critical point.

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Bronze doors of the Rotunda of Capitol, designed by Randolph Rogers in 1858. The panels illustrate scenes in the career of Christopher Columbus.

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Courtesy of the Department of Agriculture.

"The Ghosts," Wheeler National Monument, Rio Grande National Forest. The mammoth size of these rocks may be realized by comparison with the campers' tents in the foreground.

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New Hampshire Avenue, one of the most beautiful streets in Washington, is lined with American elms that form an archway. The home of Perry Belmont, where the Prince of Wales stayed during his visit here, is on this avenue. Washington has more trees than any other city in the world, Paris ranking second.

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The State, War, and Navy Building is an example of Italian Renaissance architecture. In this building General Pershing issued "General Order No. 1, A. E. F.," in 1917, and two years later the last General Order disbanding the A. E. F.

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Armor plate at Proving Grounds, Aberdeen, Md., showing size of holes made by 16-inch gun in test.

Courtesy of the Bureau of Mines.

A demonstration by the Bureau of Mines of how miners, trapped after an explosion, build a brattice to keep out poisonous gases. They are equipped with oxygen tanks which will keep them alive two hours.

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Statue of Alexander Hamilton, the first Secretary of the Treasury. This memorial has recently been erected at the South entrance to the Treasury.

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The pool in the Aztec Garden of the Pan American Building, with a glimpse of the Washington Monument in the distance.

Courtesy of the Navy Department.

Navy ZR-1, which has been christened *Shenandoah*, is the first all-American built dirigible, and was designed by the Navy Department. It is 680 feet long, has six 300-horsepower Packard engines, and can fly about 70 miles per hour. Its cruising radius without stopping is over 4,000 miles. It has a crew of 9 officers and 22 enlisted men.

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Radio at Bolling Field, Anacostia, D. C., used to communicate with planes in flight. An aviator may thus receive instructions from the field while in the air, and may also make a report without coming down.

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Courtesy of the Geological Survey.

Surveying Mount Whitney—14,501 feet above sea level. This signal rock pile adds 7 feet to the height of the United States.

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Courtesy of the Post Office Department.

A scene in the Dead Letter Office. Every year the Post Office Department destroys millions of improperly addressed letters. The annual loss to the public is about half a million dollars.

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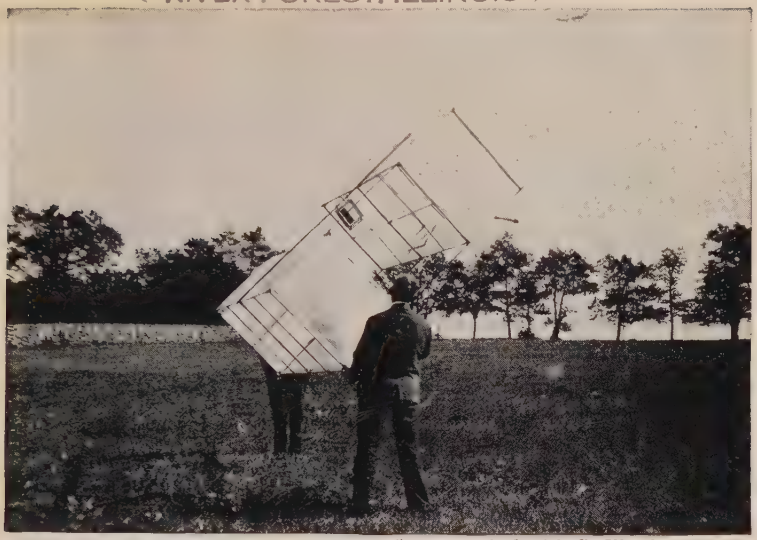

Courtesy of the U. S. Weather Bureau.

Weather Bureau experts at Washington launching a meteorological kite. Note the case of recording instruments inside the kite.

Courtesy of the Department of Agriculture.

A member of a boys' agricultural club, organized under the Extension Service of the Department of Agriculture, demonstrating how to prepare a calf for exhibition.

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The annual chrysanthemum show of the Department of Agriculture is one of the events of Washington. More than 60,000 persons attended the show in the seven-day exhibit last year.

Official Photograph, U. S. Army Air Service.

Trees in grove being dusted from an airplane to destroy insects. Of all the new fields of activity in aviation developed since the war, this is one of the most important.

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Courtesy of Panama Canal Commission.

The Panama Canal can handle the largest of modern ships. About 48 ships of average size can be passed through in a day. The largest amount of tolls collected in any one month was $2,124,410.32—July, 1923.

Courtesy of the Department of Interior.

The Roosevelt Dam at Salt River, Arizona, is the largest in the world. It is 280 feet high and creates a reservoir with a storage capacity of 1,305,000 acre-feet. It was dedicated by Theodore Roosevelt in 1911.

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Official Photograph, U. S. Army Air Service.

Army War College where field officers are trained, and strategic plans of defense and offense are worked out. No officer of lower rank than major attends this institution.

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Courtesy of Smithsonian Institution.

3. [illegible] groups in the Ethnology Exhibit at the National Museum. Officials say that more people sta
before these groups than before any of the other exhibits

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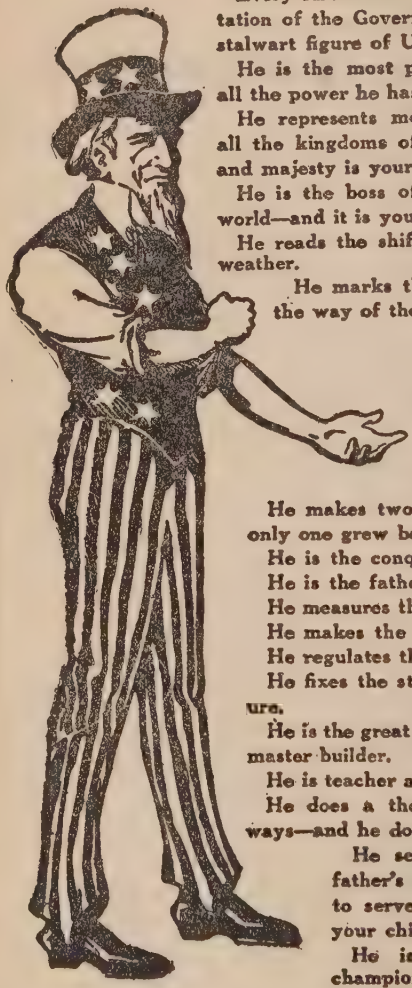
Official Photograph, U. S. Army Air Service.

Phosphorous bomb hits crow's nest of the battleship *Alabama* during one of the tests made by the Army Air Service and the Navy. The bombardment continued for three days.

THE AMERICAN GOVERNMENT

He Is Your Uncle Sam

By Frederic J. Haskin



Every American is familiar with the representation of the Government which is shown in the stalwart figure of Uncle Sam.

He is the most powerful thing on earth—and all the power he has is yours.

He represents more might and majesty than all the kingdoms of history—and all this might and majesty is yours.

He is the boss of the biggest business in the world—and it is your business.

He reads the shifting winds and forecasts the weather.

He marks the ocean lanes to make safe the way of the mariner.

He speeds the sure, swift flight of the two-cent letter.

He safeguards the perilous task of the miner.

He smites the rock and the dead waste of the desert teems with life.

He makes two blades of grass grow where only one grew before.

He is the conqueror of disease.

He is the father of invention.

He measures the heat of the stars.

He makes the money.

He regulates the time.

He fixes the standards of weight and measure.

He is the great record-keeper and the world's master builder.

He is teacher and law-giver and judge.

He does a thousand things in a thousand ways—and he does them all for you.

He served your fathers and your father's fathers, and he will continue to serve you and your children and your children's children.

He is the unselfish, undefeated champion of liberty.

He is your Uncle Sam.

REVISED - ENLARGED - ILLUSTRATED

THE AMERICAN GOVERNMENT

BY

Frederic J. Haskin

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Before publication every chapter of this book was read and approved by a Government authority.

Illustrations from Photographs by Harris & Ewing

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PREFACE

THE various editions of "THE AMERICAN GOVERNMENT" have attained a circulation of almost 700,000 copies. The demand for a revised edition has been persistent and widespread, from educators, publicists, officials, and other leaders in national affairs, and from the great rank and file of the people to whom it is dedicated. This constitutes a gratifying verdict of popular approval that is an incentive to make the Revised Edition a bigger and better book in every respect. The new volume contains 12 new chapters, and the revision of the chapters included in the other editions has led to the incorporation of much additional and more diversified material. While this book is a generally comprehensive review of the work of the Government, it does not undertake to relate the complete history of the various departments nor to present a full account of all of their activities.

The author desires to thank the thousands of readers who have written him letters of appreciation and constructive criticism, and to acknowledge with gratitude the assistance rendered him by innumerable individuals, both in and out of the Government. He desires particularly to praise the members of his staff for their admirable and efficient cooperation.

INTRODUCTION

THIS book is to tell about the work of the Federal Government of the United States of America, the most active and powerful Nation in the world, what is required of the servants of its people from the President down, and how these officers perform that service. It is an effort to tell in the ordinary language of everyday life what the Government does and how it does it.

Foreigners have said that we are a people of superlatives—everything we have or do is the biggest or best, peerless or incomparable. Perhaps that criticism is merited and it should be admitted that modesty is not one of our national virtues. It should be remembered, however, that the United States was from the outset the greatest experiment in government that the world had ever known. Europe predicted freely that it would prove to be the greatest failure, but step by step through a century and a half its record has been one of surpassing accomplishments. It is to-day the same machine that was set going by the impoverished people of the Atlantic seaboard, who numbered altogether not 3,000,000. They established the Government more in hope than in confidence, and not the wisest seer nor the most optimistic dreamer among them would have dared to predict a tithe of the things that this book sets forth. That baby Government was so poor that it was forced to borrow money upon the personal credit of its officials, or to beg the little better credit of one of its constituent States. When the Capitol was built

at Washington, the central part of the great structure in which the laws are now made, the United States was compelled to borrow from the wealthier governments of Maryland and Virginia the money with which to pay the laborers. Now the credit of the United States is immeasurably greater than that of any other country. Indeed, we must perforce yield the palm to the Old World in but one respect—it remained for Europe to kindle the greatest human conflagration of all ages. We had no part in the making of that war, but it was our privilege and our destiny to bring it to a close and end for all time the menace of autocracy.

America's part in the World War was large; just how large may well be left to the verdict of history. But the extent and nature of our participation in so far as they affected our Government and our people must necessarily be included in the story which this book undertakes to tell. It is the story of a Nation, committed to peace and without plan or preparation for war, that within a few short months mobilized and moved an army of millions to a theater of hostilities 3,000 miles distant across a murderously infested sea. It is the story of a people divided as to the wisdom or need of our getting into the war, but absolutely united and inspired with a single purpose once we were in. It is the story of wizardry in finance, of miracles in coordination and concentration in industry, and of marvels in national resourcefulness and individual inventive genius. More than anything else, perhaps, it is the story of the supreme test of the American governmental structure—of the demonstration that it may be enlarged to meet any emergency and that it will withstand any stress and every strain. It is a story of which any American may well be proud as he tells it or as he reads it.

Mistakes were made during the war. Activities were duplicated that should have been multiplied. Money was wasted that might have been conserved. Lives were sacrificed that might have been saved. There were ugly exhibitions of selfishness and greed. There were individual in-

stances of attempts to delay or to defeat the common purpose. But, on the whole, the slogan of the American fighting man was the slogan of the American people from April 6, 1917, to November 11, 1918—"Let's go!" And we went—in whatever direction, over whatever obstacles, and at whatever cost, to meet whatever emergency arose!

In the aftermath of the war, as we study the American Government, we can see how much larger and better this wonderful institution has become. Whereas, we were a few years since "a billion-dollar country," we are now four times that large. That is to say, the annual revenues and expenditures of the Federal Government have been quadrupled.

Every American should know the story of the manifold functions of his Government. It can but make him a better citizen and more proud than ever of his birthright. And every alien who comes to these shores should be taught the story, for nothing could do more toward fitting him for citizenship. It is a well-recognized fact that this country is no longer a melting pot in the sense that it was during the first 50 years of the life of the Republic. During that period the peoples who came from other countries were attracted here in most part through their desire to enjoy the blessings of freedom, liberty, and justice in a larger measure than was possible in their native lands. Upon their arrival they began to learn our language and to study our form of government. Their highest ambition was to become assimilated and to lose their distinctive foreign characteristics as rapidly as possible. Their success produced the typical American.

In more recent years, however, there has been a great change not only in the character of the peoples who have come here from other countries, but more so in their habits and customs after their arrival. Instead of casting off their old traditions and native characteristics as their predecessors did, they have become congregated in distinctive groups for the very purpose of perpetuating the same modes of life they were accustomed to before they came to the United States.

They continue to speak and read their native languages; they make little or no effort to familiarize themselves with our form of government, and it goes without saying that their ignorance of it inevitably will breed unrest, prejudice, and discontent—fertile soil for the seed sown by agitators and apostles of change who would supplant our time-tried institutions with political vagaries and half-baked economic theories.

The foreigner who understands the Government of the United States will not become its enemy. It is only the uninformed among the undigested masses who are susceptible to the various cults which are in opposition to the national authority.

Uncle Sam is not merely a tax collector and policeman. He is the partner of every citizen engaged in legitimate productive activities. He does myriad things to increase and to better the product of field, of mine, and of mill. His experts are constantly engaged in solving the vexatious problems of industry, of agriculture, and of commerce. He fosters new enterprises, introduces new crops, and opens up new markets. He improves facilities of communication and transportation. He protects the weak against the strong and unscrupulous. He safeguards the lives and health of his people. He encourages inventive genius and provides wonderful educational opportunities in a hundred lines. In short, he does everything that human intelligence can conceive to make this a better country in which to live, to improve living standards and conditions, and to add to the sum total of happiness and prosperity.

Through all the ages humankind has struggled constantly against the tyranny of despots or the savagery of mobs. The American Government was born out of the agonies and the aspirations of the oppressed, and consecrated to liberty, to equality, and to justice. It is a Government *for* the people. Its institutions are enduring, its principles imperishable.

THE AMERICAN GOVERNMENT

I

THE PRESIDENT

THE President of the United States has more responsibilities and greater power than any individual in this or any other land. He is the foremost ruler of the world. And yet he can not be a tyrant, nor even a benevolent despot, for the exalted office he holds is not his by birth nor by conquest, but by virtue of the votes of his fellow citizens. Under our form of government he who rules is in reality the servant of the people and the burden he must bear is proportionate to the authority he wields.

The dynasties of the world were set up by force and monarchies obtain their rulers by succession. In the days of the Roman Empire, many Emperors were chosen by acclamation of the army and of the people, but almost invariably the death or deposition of the past ruler and the election of his successor were accompanied by riots, violence, and bloodshed. The outstanding phenomenon of American political life is that the old ruler steps down and the new one is inducted into office without a ripple of popular unrest. Upon his inauguration a new President rides to the Capitol in the same carriage with the outgoing chief. This is typical of the peaceable acquiescence of the American people in the victory of the ballot box, the world's greatest political battle, which takes place every four years.

When the American Republic first was set up, European students of public affairs declared that no such system could succeed. It was freely predicted that a strong President

would not, upon expiration of his term, step down for his elected successor. There have been thirty Presidents of the United States and not once has there been even a suggestion of resistance by any President or by any political party to the verdict of the people.

Prior to the World War, the United States stood in almost complete isolation from international affairs. To-day, it is looked to for world-wide leadership. Washington has become in many respects the capital of the world, for what the United States does and says has a profound influence in every land and on every sea. This increase in influence and power of the President has not taken from the transfer of the office any of its peaceful, tranquil, and orderly character; indeed, the very ceremony of succession has become more simple as the office has enlarged in scope. The simplest induction into office any President ever has known was that of Calvin Coolidge, following the untimely death of Warren G. Harding. In a little farmhouse, deep in the Vermont hills where once the Green Mountain Boys defended their liberties, under the beams of an oil lamp, the greatest ruler of the world was sworn into office by his father, a mere notary public, and in the presence of only a handful of people. Yet not a single American challenged the right of Calvin Coolidge to occupy the exalted office of President.

Nothing better illustrates the democracy of the American people than the fact that at the time Mr. Coolidge assumed his great office his son, Calvin, was working as a common laborer on a farm near Northampton at a wage of $3.50 the day. And the lad continued at his humble task as if events had not transpired to make him one of the most interesting and most talked about youths in the world! The successful candidate for the Presidency faces four years of administering the laws of the greatest nation on earth. Congress makes the nation's laws, the courts interpret them, and the President executes them. Congress may appropriate billions of dollars a year, but the President must execute the laws

by which these vast sums are raised as well as those under which they are spent. In recent times the annual Government revenues and expenditures have been in the neighborhood of four billions. Thus, in one year, the modern President has charge of the expenditure of as much money as his predecessor of only a decade ago handled in his whole four-year term.

Not only must the President execute the laws; it is incumbent upon him to take an important part in framing them. The Constitution provides that he shall advise Congress on the state of the Union, and in carrying out this function he suggests what laws are needed for the improvement of conditions.

Under the budget system, which now is the governor of American governmental finances, detailed estimates are made of the precise amounts which Congress is called upon to appropriate for running the various Government establishments. The Bureau of the Budget is the direct representative of the President. He scrutinizes and reviews the estimates made, and when they have his approval they are transmitted through the Treasury Department to Congress. These budget figures are drawn with an eye to the estimates of what revenues the Government will collect. If these revenues seem inadequate to meet the needs, the President may suggest new revenue legislation, or at least invite the attention of Congress to the need for such legislation. The Constitution provides that all measures for the raising of revenue shall originate in the House of Representatives and on a few occasions members of that body have taken exception to White House suggestions for taxes, declaring that the lower house of Congress, not the White House, is the constitutional source of taxation. No money can be paid out by any Government department save by virtue of an appropriation of Congress, and no appropriation bill is valid without the signature of the President or its passage over his veto unless he holds it more than 10 days without taking action.

While the President has a Cabinet to assist him in his supervision of the execution of the laws, under the Constitution, he is solely responsible for every official action of every member of that body. But as a collective organization the Cabinet has no official standing, its decisions being in nowise binding upon the President. This is illustrated by a story told of Lincoln. He brought before his Cabinet a proposition which he favored and which the Cabinet opposed. A vote was taken. All seven of the Cabinet members voted against the measure. The President voted for it. "The vote is 7 noes and 1 aye," the President said. "Therefore the aye has it." At present there are 10 members in the Cabinet.

The attention of the President is demanded by a multiplicity of things. Thousands of officials of the Government are appointed by him and he must carefully consider the appointment of a man to even an insignificant position because the President is sworn to uphold the Government and should he appoint a man not worthy to represent the Government, even in a small way, he would be negligent of his oath. So he may turn from the question of the Shellbark postmaster to consideration of an international policy affecting the whole world. So great is the pressure of business upon him that there is a proposal for the creation by Congress of the position of Assistant to the President, to be appointed by him or, perhaps, to be elected in some manner, the duties of the office including the great mass of detail to which the President must now give personal attention. The Vice President, under present practice, is in no sense an Assistant President. His duties are in the legislative, not in the executive branch.

The work at the White House is systematized as highly as possible. The President's mail is the largest received by the head of any Government, but it is so handled as to be least burdensome to the President himself. The daily grist of letters and telegrams frequently runs as high as 2,000 or 3,000, but only about a hundred of these ever reach the President. One clerk at the Executive offices classifies the

incoming mail. A card-index system of all correspondence is maintained with a complete filing system. Probably a hundred letters out of the day's mail may be answered by a form letter, without even engaging the attention of the Secretary to the President. Scores, hundreds, of the others will be found to concern, not the President, but some Government department, and will be referred there immediately. Others go to the Secretary. He makes a digest of their contents and, when opportunity offers, gives the President the substance of the communications. The President will give verbal instructions for answering some; to others he will dictate replies. It is useless to mark a letter "personal" in sending it either to the President or his wife. All such letters necessarily are opened by the staff of clerks. Only letters initialed, in a way known to the clerks, by intimate personal and political friends of the President reach his hands unopened. Any President who would attempt any different or more cumbersome handling of his mail would find the task beyond human capacity.

Probably no other official in the world receives more begging letters than the President of the United States. Often the letter-writing proclivities of the beggars are stimulated by jokes which the Washington correspondents sometimes perpetrate upon the President. When Mr. Roosevelt first enunciated his celebrated antirace-suicide doctrine, some humorous writer sent out a story to the effect that the President had received 28 baby carriages. It was published broadcast and hundreds of poor families wrote him asking for the carriages. It is a fact that so many persons send gifts to the President that he frequently receives large numbers of duplicates. It was reported at the time President Taft celebrated his silver wedding anniversary that he received more than 200 silver sugar bowls and duplicates of other silver articles in proportion.

The most notable gifts which President Wilson received were given when he was in Europe negotiating the Peace

Treaty. The city of Rome presented him with a solid gold statuette of Romulus and Remus with the Wolf. It stood about 5 inches high and was valued at many thousands of dollars. The city of Genoa presented him with a marble bust of Columbus, and other cities, kings, organizations, and individuals presented him with gifts. On his return some Members of Congress questioned his right to accept these because the Constitution forbids an American official accepting emoluments from foreign Governments or princes. The matter finally was dropped, the gifts being regarded as personal.

Mr. Harding received many gifts during the years of his Presidency, most of them being pictures and books, small trophies, and articles of adornment. At the time of his death three rooms in the White House were filled with them and two weeks were required in packing and crating them for shipment to Marion. The first gift that President Coolidge accepted was a dog that was sent to him by a friend in Boston.

Writing to the President has become much more general in recent years than formerly. It is said that during the Grant administration, business was so dull that the Executive office staff used to play croquet on the White House lawn during the hours between the mail deliveries. The war produced so many organizations, so many more activities, and so widened the scope of the Executive function, that no such quiet time ever will come again.

The constant stream of callers and the vast routine of business make the heaviest demands upon the time of the President. During the first three or four weeks of his administration, he receives large numbers of friends and supporters who come to congratulate him. These numbers have run as high as 20,000 to 30,000 in the first month. George B. Christian, Jr., says that during the two years and five months of the Harding administration, approximately 250,000 people called on the President. Unless the President learns the trick of gripping the visitor's hand before the visitor grips his,

he is certain to have a badly swollen arm. President Roosevelt was one of the greatest handshakers and was a past-master in the art.

The President may transact the business of his office at any place he may select and there is nothing to prevent his spending the major portion of his time elsewhere than in Washington. Congress once asked President Grant to advise it as to what part of his duties were performed outside the District of Columbia. He replied in a polite, but none the less pointed, note that it was none of Congress' business. Never since then has this right been questioned. There is nothing in the Constitution which prohibits the President from going beyond the borders of the United States, but Mr. Cleveland was the first President to do so. On a fishing trip he went beyond the 3-mile limit. Such an incidental excursion beyond the American territorial limits pales into insignificance beside the two trips which President Wilson made to Europe or the late President Harding's tour to Alaska.

Aside from the great power accruing to the President through his right to appoint all of the administrative officers of the Government and to supervise the expenditure of billions of dollars appropriated by Congress, and beyond the prestige which his office gives him, he possesses a power in legislation equal to 15 Senators and 71 Representatives, since it takes two-thirds of each House to override his veto.

The only method by which the President can be thwarted in his purpose by Congress, as long as he keeps within his constitutional powers, is by its refusal to appropriate the money he needs for carrying out his plans. As Commander in Chief of the Army he has the right to handle it as he sees fit. But Congress controls the appropriations for the support of the Army and it provides that this money shall be available only when the Army is handled in a specific way. As far as the military arm is concerned there is even a definite check upon Congress. The Constitution provides that no appropriation for the Army shall be made for more than two years in

advance. Thus it is made impossible for a Congress to appropriate a large sum to pay an Army which, conceivably, might be employed to keep that Congress in power. In other ways the control of Congress over the money supply acts as a check on the President.

The person of the President is inviolable during his term of office. Theoretically, he can not be arrested nor restrained by any official. The only remedy against him while President is the cumbersome proceedings of impeachment—invoked against but one President, Andrew Johnson. In that case, the proceeding failed by one vote of ousting the President. Even in these proceedings he can not be compelled to answer, to attend, or to do any other thing which in the slightest degree might interfere with his personal liberty. This is upon the theory that such restraint would restrict either the negative or the positive powers of his office and enable other individuals to circumvent the supreme authority of the Constitution. The protection goes so far that Congress may not alter the salary of the incumbent President. In practice, however, the President may be arrested and otherwise restrained. General Grant was once arrested, during his Presidency, by a negro officer for fast driving. He commended the officer for doing his duty, put up $20 collateral and forfeited it in the police court the next day.

As far as the courts are concerned the President may also do as he pleases. Interested parties have sought by injunction proceedings to restrain him from doing certain things, or by mandamus to compel him to do other things, but the courts have uniformly refused to take any action hampering the discretionary power of the President. Congress and the President often clash, but the judiciary and the President seldom do. In one instance Chief Justice Marshall handed down an opinion which did not suit President Jackson. He declared: "John Marshall has made his decision; now let him enforce it."

While many people complain that the President is a poorly

paid and poorly housed Chief Executive, considering the size and importance of the American nation, nevertheless he manages to live in a style which would be pleasing to any American citizen. The annual appropriation for the upkeep of the White House now is running at the rate of $124,000 a year. This sum is provided by Congress, aside from the presidential salary of $75,000 a year with an added allowance of $25,000 for traveling expenses. The White House grounds comprise 17 acres and a corps of 60 servants are required for the establishment. The Executive offices are maintained separately. The charges for stationery, telegrams, and telephone service run to $36,000 a year and the President has a $3,000 printing allowance. The Government maintains a special police force at the White House, consisting of three officers and 30 privates. This costs $59,000 a year.

The President is the only Government official not required to sign the pay roll. In the time of President Cleveland the salary of the President was $4,166.66 a month. So accurate is the Treasury system of bookkeeping that the salary check of the President was drawn for $4,166.66 one month and $4,166.67 for the next two months. At the end of his term it was found that there was still due the President the amount of 1 cent, so a check for that amount was drawn in his favor. It has never been cashed, but is one of the souvenirs of the heirs of the former President.

The President of the United States is one of the most photographed persons in the world. Washington photographers, as well as the great commercial photograph companies of other American cities and of foreign lands, take thousands of pictures of the Chief Executive. The President is almost as frequently a subject for the motion-picture camera as for the still camera. Still and movie photographers are stationed at the White House, not only to avail themselves of every opportunity to take the President, but also to photograph distinguished visitors. No famous person can step out of the White House without being asked to pause

a moment for the movie men and the snapshot artists. One Washington firm alone has more than 1,500 negatives of the late President Harding.

The quadrennial election at which the American people choose their President for the ensuing four years is the greatest political battle of the world. Investigation discloses the fact that the names of more than 700,000 candidates are on the ballots which are cast the day of a presidential election, ranging from the names of the presidential candidates or electors to minor county officers. Every telephone and telegraph company in the country lends itself to the public on election night for the transmission of the returns and the advent of radio communication has added another facility in the form of the broadcasting stations. No one ever has attempted to estimate the amount of business carried on election nights, but if paid for at the usual rate, the transmission of the returns would cost hundreds of thousands of dollars. The news is spread not only throughout American territory, but to ships at sea by means of high-power wireless stations, and to foreign nations.

The President is inaugurated on March 4, about 4 months after his election. While a presidential candidate always receives formal notification of his nomination by a committee, the President-elect receives no such advice, but gets his information merely from the newspapers and presents himself in Washington a few days before his inauguration.

The usual inauguration is one of the finest governmental spectacles in the world. In recent years the ceremony has been greatly simplified, but it is possible that the former splendors may be revived. Since the war a feeling has existed that a simple inauguration is more in keeping with the democratic simplicity of the form of our Government. At the time of the inauguration of President Harding, he forbade any display on the ground that it was unbecoming at a time when hundreds of thousands of Americans were temporarily out of employment and presumably needy.

The Harding inauguration, in consequence, was the simplest in recent times.

In earlier days as many as 30,000 men marched in an inaugural parade and 200,000 visitors came to Washington to witness the event. Daniel Webster said of the crowd which attended the first inauguration of Andrew Jackson that it was "a multitude, too many to be fed without a miracle, and that it seemed that the whole nation rushed to the Capital." That "multitude" was computed to be about 8,000 people. The first real inaugural ball occurred when James Madison came into office. The crowd which attended was estimated at 400. Provision was made for 15,000 at the Taft inaugural ball. This gay event, formerly looked forward to with eager anticipation, also has been abandoned in recent years. Neither President Wilson nor President Harding authorized the holding of inaugural balls and, unless some President soon revives the old custom, it is in danger of being considered too long dead ever again to be made part of the inauguration festivities.

Although one of the richest men of his time, George Washington had to borrow $3,000 to defray his expenses to New York where his inauguration took place. When he arrived at the Federal Hall it was found that there was no Bible in the building and an attendant saved the day by getting one from a Masonic lodge room nearby. When Calvin Coolidge was called from his bed at midnight in a little Vermont farmhouse to take the oath of office, it was found that, while there was no lack of a Bible, the precise wording of the presidential oath was not known. Hasty messages were sent to Washington and the text of the oath was forwarded by the Secretary of State. It reads: "I do solemnly swear (or affirm) that I will faithfully execute the office of President of the United States and will, to the best of my ability, preserve, protect, and defend the Constitution of the United States."

John Adams wrote after his inauguration that there was more weeping when he took the oath of office than he had

ever witnessed at a tragedy, but whether it was from the loss of a beloved President or the accession of an unpopular one, he could not say. Martin Van Buren, in his autobiography, declares that Adams cherished a secret ambition to be king, not President, of the United States. When John Adams was succeeded by Thomas Jefferson he moved out of the White House the night before March 4 and refused to ride to the Capitol with his successor, in the customary manner, or even welcome him to the White House. President Johnson refused to meet General Grant, it having come to his ears that General Grant had said he would not ride to the Capitol with Johnson. James Monroe was the originator of the custom of holding the inaugural ceremony on the east portico of the Capitol.

After the President is inaugurated, unless the state of public affairs demands the convening of an extra session of Congress, he has but little work to do other than to name the higher officials of the Government until the ensuing winter, when he makes his first annual message to Congress. In recent years an agitation has sprung up for a change in this. It has been urged that too long a time elapses between the election of the President and his inauguration. The people have a right to be ruled by the man they have chosen without waiting four months, it is contended. The reason for the long hiatus goes back to the early days of American history when there were no telegraphs and no railroads. Communication and travel were slow and four months' time was needed for the news of the election of a new President to be disseminated and for him to reach the Capital City. Now communication is instantaneous and travel speedy. It is proposed that the inauguration day be moved up at least to January 1. Coupled with this reform is the proposal that the newly elected Congress, chosen at the same time as the new President, be seated not later than January 1, for the reason that it is unrepresentative for the new lawmakers to have to wait anywhere from four months to a year before taking their places.

In his annual message to Congress the President outlines his policies and seeks to win the approval of the nation. Thomas Jefferson delivered his messages to the Congress in person, but for a hundred years this practice fell into disuse, and the messages invariably were sent to the Capitol by special messenger. The mere appearance of the White House messenger at the door of either house is the signal for an immediate suspension of business. When Woodrow Wilson became President he reestablished the old custom of going to the Capitol to address Congress in person. On notice from the President, the two Houses pass a resolution providing for a joint sitting to hear the message. The sitting is held in the Hall of the House of Representatives as the Senate Chamber is not commodious enough to seat both groups comfortably.

In order that the text of the message may be as widely circulated as possible the President has numerous copies printed which are handed to Washington correspondents of all newspapers a short time before he leaves for the Capitol. This gives a short leeway for transmission of the text over the wires and, simultaneously with the actual delivery, the text of the message appears in newspapers in every part of the country. It formerly was the practice to send out copies of the message several days in advance of delivery, but experience proved that leaks occurred and the presidential utterances, often pregnant with announcements affecting business, including the stock market and international affairs, reached a few persons in advance of general publication and resulted in unfair speculations. To avoid this, the messages now are given out no longer in advance than just that length of time needed for their transmission to the public.

Great care always has been taken to prevent premature publication of a presidential message. There never has been a leak as the result of direct betrayal by a newspaper which received an advance copy, but there have been other leaks.

During the Harrison administration, an employee of the Government sold a copy to a Washington correspondent. During the Roosevelt administration the President himself sent advance copies to the magazines and some of these found their way into Wall Street in advance of the release. The new method stops all this.

President Roosevelt was the champion message writer of American history. He wrote more than twice as many messages as President Cleveland, and it is said that the vocabulary that he employed embodied a greater range of words than were used by all his predecessors combined.

When Woodrow Wilson began writing addresses to Congress and notes to foreign powers, there was a revival of attention to the literary merit of the utterances. Previously little attention had been paid to the literary aspects of these official papers. It was early realized that Mr. Wilson was a master of English, and scholars and literateurs, as well as politicians, began paying attention to what he produced. President Harding's messages were regarded as scholarly also and President Coolidge's proclamations as characterized by an almost Lincolnian simplicity and terseness. President Wilson was one of the first Presidents of later times to write his messages entirely himself. He did not even dictate them, but picked them out on a typewriter.

The literary merit of President McKinley's messages improved after John Hay became his ranking advisor and it has been no unusual thing for a President to resort to aid in the preparation of a message. Even Washington's Farewell Address is said by critics to show traces of the style of Alexander Hamilton. Also, J. Pierpont Morgan has an original letter written by Washington to James Madison asking him to prepare the Farewell Address and containing an outline of what he wanted. James Madison is known to have written the famous nullification proclamation issued by Andrew Jackson. One of the finest messages in the history of the Presidency, from a literary standpoint, is credited to

Andrew Johnson who had fewer educational advantages than any other President. It is said he was unable to read or write until taught by his wife. However, this famous message was written by George Bancroft, the historian. The original draft now is in the manuscript division of the Library of Congress, in Bancroft's handwriting, with only a few unimportant additions and references added in the hand of President Johnson.

Sometimes a presidential message lays down a principle which comes to be universally accepted as fundamental and thus becomes almost as much a part of the organic law of the land as if it had been incorporated in the Constitution itself. An instance of this is the Monroe doctrine. When, in one of his messages, President Monroe declared that the United States would not tolerate further extension of European dominions and influence in the western world, he laid down a principle ever since accepted as a cardinal precept of American policy. The message in which this doctrine was enunciated concerned Russian affairs.

President Taft in six years of speech-making before and after becoming President, uttered nearly two million words in his public addresses and his successors, Wilson and Harding, maintained about the same rate. These utterances are printed and compiled into bound volumes.

One of the most interesting contacts of the President with the public is that through the Washington correspondents. These regular press conferences were inaugurated by Mr. Taft. Before his time the correspondents had interviews with the President when they were fortunate enough to get them. President Harding set the hours of 1 o'clock of each Tuesday and 4 o'clock of each Friday as definite engagements for reception of accredited Washington correspondents. Care is taken to exclude masqueraders and curiosity seekers from joining the throng of one to two hundred newspaper men which assembles. The correspondents, in advance, write out questions they desire to have the President answer.

These are in the President's hands when the correspondents are ushered in. He then answers them, or not, as he sees fit and makes any additional announcements he desires. Frequently, verbal questioning, concerning some topic raised by a written question, is permitted by the President; but as a rule the interview consists of answers to the written questions, spoken by the President to the entire assembly. The reason for the written question is that should the President desire to make no answer to some question, only the man who wrote the question will be aware of that fact. In many political circumstances the mere declination of a public man to answer a question has some significance attached to it. Just as the newspapers are the medium through which a man is advised that he has been elected President of the greatest country in the world, so the newspapers are the principal point of contact between the people and that man after he has assumed office.

II

THE DEPARTMENT OF STATE

THE Department of State is the long arm of the Government that reaches across the seas. It has important duties of a domestic character, but its chief function is to conduct, under the direction of the President, the relations of the United States with all foreign nations. Its Secretary is the ranking member of the Cabinet and after the Vice President is next in line of succession to the Presidency. Through him, in conformity with the precedent established by George Washington, all foreign diplomats must be presented to and communicate with the President.

The early Foreign Secretaries, Robert R. Livingston and John Jay, had a staff consisting of one clerk and occupied but two small rooms as offices. To-day the department fills half of the great State and War Building, and instead of a Secretary and one clerk it has a home personnel of more than 600 persons and maintains abroad an army of workers, 3,400 strong, scattered throughout the world.

The origin of American diplomacy came before the Revolution. Men like Benjamin Franklin, Arthur Lee, and William Bollan were in Europe as agents of the various colonies; and when the first Continental Congress met in 1774, these agents were asked to speak for the United Colonies in London in the attempt to adjust amicably differences with the King's government. Their failure resulted a year later in the appointment of a Committee of Secret Correspondence, headed by Franklin, which in reality was a committee on foreign affairs and the beginning of the State Department. Ultimately the name of the committee was changed formally to Committee of Foreign

Affairs, and it was representative of Congress. Its first Secretary, Thomas Paine, received $70 a month. He was dismissed for injudicious publication of an official document. Government records show that before the Constitution was adopted, the early American diplomats were paid on a somewhat peculiar basis of fixing compensation. Franklin, while representing the nation in Paris, received a salary of $4,444.04 a year, while Jefferson, when he was later sent to Paris, was paid at the rate of $11,111.01. Ambassadors to-day are paid $17,500 a year. When Jefferson became the first Secretary of State, he received $3,500 a year. The Cabinet officers now receive $12,000 a year although they have under their direction many men who are paid larger salaries than they themselves receive.

Not until 1781 did Congress consider the creation of a Department of Foreign Affairs, and it was organized with Robert R. Livingston as Secretary. Congress retained full control over foreign relations and the first American Foreign Secretary complained bitterly that he could take no independent action in shaping policies.

It is significant of those old days that communication with Franklin and Jefferson and the others who were American ministers abroad was difficult in the extreme. The ancient records of the department show that hand-written copies of letters were prepared, sometimes as many as seven copies being made, and forwarded by different vessels to keep them from British hands. Special ciphers were used even then, and sometimes invisible ink. Frequently the coverings of these early diplomatic communications bore the instruction to the shipmaster, "To be sunk in case of danger from the enemy." Even with these precautions many of the letters came into the hands of the British.

John Jay, one of the American commissioners who negotiated the peace with Great Britain in Paris in 1783, succeeded Livingston as Foreign Secretary only to find that the functions of the department had almost lapsed because the

attention of the nation was concentrated on internal affairs. The plight of American diplomats abroad, where they met with disdainful reception at the great courts and were asked if they spoke for one nation or thirteen, played its part in recasting the executive machinery after the Constitution had been adopted. At first it was expected to retain the Department of Foreign Affairs, but again the more pressing internal questions intervened and the act creating the Department of State as a combined home and foreign office with jurisdiction over all matters, except those of the Treasury and War Departments, was passed in 1789.

When Jay was named in 1789 to be Chief Justice of the United States, Thomas Jefferson was selected to become first Secretary of State, and he traveled from Virginia to New York to take up his duties in 1790. Among his duties were many that have long since passed to other departments as the governmental machinery grew. These included supervision of patents; custody of all charts, maps, and books submitted for copyright; superintendence of the census; administration of the affairs of the Territories; registration of American seamen and of incoming alien passengers; organization and management of the mint. After a survey of his task, Jefferson declared it covered "the whole domestic administration, war and finance excepted."

The State Department retains to-day many domestic functions that are understandable only in view of the historical background. It is required, for instance, to affix the Great Seal to a mass of documents including diplomatic and consular commissions, ceremonial communications with foreign Governments, exequaturs of foreign consuls, warrants for the receipt of persons surrendered by other countries under extradition treaties, commissions of American civil officers at home, and many other papers, most of which have little to do with foreign relations. The department also receives all formal communications to the Federal Government from the governors of the States; it is advised by the

governors of the result of voting in national elections and certifies these results to the Senate and House; it also must certify the adoption of constitutional amendments and promulgate the changes.

Jefferson, as first Secretary, organized the mint. It is recorded that he began experiments with copper coins, seeking to decrease their bulk and at the same time maintain their value. From the earliest days of American coinage there has been a tendency to keep away from the large coppers in use abroad. Jefferson sent to the President examples of the experimental coins, saying they had been made "by putting a silver plug worth three-fourths of a cent into a copper one worth one-fourth of a cent."

There are now American diplomatic missions in 51 countries. Twelve of these are headed by ambassadors at the major capitals of the world. That is the highest diplomatic rank. Besides these there are 34 ministers, one minister and consul general and one diplomatic agent and consul general, the latter two combining both the diplomatic functions and supervision of consular matters. In addition there are 125 diplomatic secretaries of various ranks, known as career men, since they are making the American foreign service their life work, and 453 noncareer diplomatic employees.

There are also counselors at all embassies and some legations, as the missions headed by ministers are known. The counselors rank first among the career men and next to the heads of missions. With the diplomatic secretaries and in cooperation with the military, naval, and commercial attachés assigned to the most important missions, the counselors make up the trained diplomatic staffs. In recent years several of these trained diplomatists, with wide experience in many capitals, have been named as ministers by the President. One of the career men is now Undersecretary of State, second only to the Secretary himself in the department.

The career men are required to know something of the language, history, culture, and political, economic, and

social conditions of the countries to which they may be accredited. In the absence of the ambassador or minister, the counselor or highest ranking secretary acts for him as chargé d'affaires. Because of the special language difficulties in China and Japan, a corps of career men, known as language secretaries, are attached to those missions. Their chief duties are those of translators and interpreters.

Probably the most important function of an ambassador or minister is exercised through his informal conversations with officials of the Government to which he is accredited. In these post-war days, when international conferences are so much in vogue as a means of arriving at good understandings on complicated international questions, the diplomats have heavy responsibilities. No power likes to call a conference unless certain good results will flow from it. The diplomats, usually through informal talks, must discover in advance whether there exists a common basis of understanding in principle upon which a conference agreement is possible. If so, the conference evolves the precise formula of the agreement; or, in some cases, the conference states the principles and leaves the writing of detailed formulæ to diplomatic exchanges. In any case, the ambassador or minister must be deeply versed in the policies of his own Government, and sound in his observation and judgment of conditions about him in his foreign post, if his mission is to attain its full purpose in promoting friendly relations and peaceful adjustment of clashing international interests. In all deeply involved questions the ambassador or minister seeks direct advices by cable from the Secretary of State at Washington. The conspicuous legal talents and broad understanding of the principles of international comity possessed by Charles Evans Hughes enabled him to make his administration of the secretaryship notable for the firm upholding of American rights in all the complicated post-war readjustments, coupled with strong pressure for amicable settlement of international disputes.

As the representative of his Government, it is the business of an American diplomat abroad to conduct official negotiations between the two capitals, such as the drafting of treaties; to promote all legitimate American interests in the country where he is posted; to study and advise the Secretary of State on political and economic matters and subjects of general interest; to scan all legislation of the foreign State that bears on American interests, and make protests if proposed measures are not in conformity with treaty stipulations. Consuls usually intervene where traveling Americans are involved with local or municipal authorities; but if a case requires the attention of the foreign Government, it passes into the hands of the diplomatic representative.

A consular officer is chiefly a business agent in a particular district in any country. He may be employed on diplomatic work, but, as a rule, his task is a widely varied one and confined to the particular city or district for which the Government of that country has granted him an exequatur. He does not enjoy diplomatic immunity.

There are over 500 American professional consular officers scattered over the world, and working with them are about 2,200 vice consuls, consular agents, clerks, interpreters, and other American office personnel. To outline the general instructions under which they work requires more than 3,000 paragraphs in the Consular Regulations, and there is an endless variety of forms and reports pouring back to the United States from every consulate. There are more than 400 consular offices located in foreign trade centers and some in very remote places. Probably the most inaccessible is that at Chung King, far back in the interior of China, almost on the frontier of Tibet. To reach it requires six weeks' travel from Shanghai by river. Much of the distance is traversed in a small river boat, pulled by a hundred Chinese coolies, who are paid a cent a day each. So deep are some of the gorges in this water route that at times the towing ropes seem to stand straight up in the air.

Consuls are chiefly the agencies through which the Government promotes American commerce abroad. Reports upon trade conditions number about 2,000 a month and replies to inquiries from business men average approximately 5,000 per month. Extraordinary commercial developments have sometimes arisen from opportunities seen and reported abroad by these sharp-eyed outposts of American industry. In one case a home industry, which to-day has resources of tens of millions of dollars, owes its origin to a consular report which told of the remarkable recuperative powers of native runners in a distant country. The consul said these runners would speed through the heat and the jungles for hours without stopping for food or drink. Arrived at their destination they would squat down on their heels, pull a strip of dried root or bark from their loin cloths, and after munching it be ready to start back without other rest or refreshment. The herbs they chewed, he said, seemed to have remarkable properties for overcoming fatigue. A Washington newspaperman saw this report and wrote a story which caught the eye of some wide-awake men looking for a business opportunity. The result was the introduction of Coca Cola.

The consuls are the guides, philosophers, and friends of traveling Americans everywhere. They are the men who straighten out travel difficulties, care for the estates of Americans who die abroad, get the tourists out of difficulties with foreign officialdom, care for stranded American seamen, certify export papers for goods shipped to the United States, take up tangles between American buyers or sellers and their foreign business connection, aid in enforcement of immigration laws, look after passport matters, and report on health conditions, trade developments, new processes of manufacture, crop outlook, and almost anything else that comes to hand. Their work has doubled with the postwar expansion of the American merchant marine, for they are the business agents through whom ships secure much of their fuel and stores.

A striking example of the ceaseless watch kept by consuls over Americans abroad to see that they come to no grief in their travels is the case of "Belgian Mike," a waif about 10 years old, picked up by a consul in Belgium after the World War because he was sure that the boy was of American birth. Mike, the official account said, "speaks English with a Bowery accent and shows American characteristics in every word and act." The boy said he was taken to France during the war in a horse transport from a Texas port, but did not know even his family name. The consul kept the lad at his own expense while he wrote to Texas cities about him and until charitably inclined people took charge of him.

The duties in connection with the viséing of passports is one of the most burdensome devolving upon consular officers. Every alien who plans a trip to the United States must have his passport viséed by an American consul before he can sail. Just after the war in one year 657,968 visés were granted and there were 408,480 during the year 1923. Each required careful attention by consular officials to protect America against improper persons and fraudulent entry. The consuls ferreted out scores of cases of fraud and saved the immigration authorities at home many troublesome cases. In the winter of 1921 at one consulate there were approximately 10,000 applications for passport visés each month, 300 or 400 persons waiting in line each day when the office was opened. There is another case where 8,000 waited about the consulate to obtain visés. The income from the consular service from this and other sources amounted in 1923 to $6,805,579.30, an amount 1⅓ times the cost of the entire service. The net gain of the Government was $1,902,859.56.

In some parts of the world the consuls also have judicial functions. Usually they manage to settle out of court difficulties involving American citizens. But there was a case in Turkey where a naturalized American of Greek birth was complained of by his neighbors who said that terrible,

unbearable odors came from his residence. The American consul investigated and found the objectionable odors even worse than reported. In the basement of his house the Greek-American had set up great vats filled with a vile compound into which he and the members of his family were dipping new Persian rugs. He frankly explained that he was making old rugs out of new ones because they brought high prices from credulous tourists.

It has long been customary for the Department of State to issue passports as a means of identification for American citizens in their travels in other countries. The United States does not require passports to enable its own citizens to leave or enter this country, but most foreign countries since the war require passports from Americans and other foreigners seeking to enter or travel in those countries. Consequently the number of passports now issued by the Department of State has greatly increased and the revenue from this source alone amounted to $1,144,862.63, the amount deposited in the Treasury during the fiscal year 1923, bringing the total receipts of the State Department from all sources during that year to $7,988,979.57.

The 1923 statistics of the consular service are startling in their indication of the growing business of Americans all over the world. More than 90,000 Americans required passport services, and there were 167,000 cases of notarial services rendered at the consulates. The number of Americans who died abroad was 1,284, the consuls taking over their affairs. The estates of 1,036 such Americans were settled despite the fact that the task of finding relatives to whom to turn over the proceeds is often difficult. Recently the State Department had three hard cases of this kind. One was that of an American engineer who died in Afghanistan; another, that of a man killed in a train wreck in Spain; the third, that of an American who died in Mexico.

During 1923 there were 75,000 protection and welfare cases before the consuls, exclusive of 3,890 American seamen

to whom they gave relief. The consular officers have frequently resorted to all sorts of expedients to help their fellow countrymen in distress. When an American merchant traveling in the Russian Caucasus was lost sight of by his relatives, the nearest consul sent a man with a taste for adventure to the scene, only to find the American held by revolutionists. His release was obtained; he was supplied with funds and shipped home.

The consuls are the overseas tax collectors of the Government, and they also act as its paymaster abroad. Americans do not escape the income-tax man by living away from home. It is recorded that one consul sent into the Treasury in one year $30,000 in tax collections. In every distant part of the world where war veterans of the American Army or their dependents now live the consuls are the agents through whom checks from the Veterans' Bureau reach the right hands. From 400 to 600 checks a month go out in Warsaw alone.

The card index of the Department of State covers diplomatic matters and all matters in which the Consular Service has a hand. Through this index the State Department officials have at their finger tips a million facts. The smallest and seemingly the most insignificant matter of to-day may affect the diplomacy of the world a decade hence. It is important that information concerning these things be filed away, and equally important that it be made readily accessible when needed. That the volume of this information is large is demonstrated by the fact that it has required nearly 4,000,000 cards to index the matter accumulated. That it covers a wide range is shown by the fact that it may relate to an international situation affecting all of the Governments of the earth, or to the registration of the marriage of John Smith and Susie Brown in Singapore.

This index also serves as a sort of diplomatic "who's who" of the world. For instance, when any other nation appoints one of its citizens on a board or court of arbitration, it is very desirable for the United States to know the

antecedents of that person. The Department of State needs only to look at its card index to determine this matter. Again, when another country sends an ambassador or a minister to Washington, it is essential that the United States should know whether or not he will be persona grata. Here again the great card index answers all questions.

There was a time when this careful checking of the records of foreign diplomats prevented a very undesirable situation in Washington diplomatic life. One nation had sent to Washington a diplomat who some years before had obtained a divorce from his wife while he was at a foreign capital, the scandal involving one of his colleagues. Years later, the first diplomat was sent to Washington. The home Government of the other man, who had meantime married the divorcee, decided to send him also to Washington. This would have brought the divorced couple and the second man in the affair together in diplomatic social circles in the United States, so the State Department indicated that the coming of the second diplomat would not be pleasing to this Government.

One phase of State Department work is of vital importance —the creation at home of enlightened public opinion on matters relating to foreign affairs. It is through the newspapers and the corps of trained correspondents they maintain in Washington that the Secretary of State seeks to inform the American people of what is going on in international affairs, and to point out the interests common to all Americans in any circumstances for the preservation of which his policy is shaped. By reason of the fact that he is engaged in delicate diplomatic correspondence, he is unable to talk publicly of what he is attempting to do. He is the official spokesman of the Government on such matters and every word he utters has weight in the foreign offices abroad, so his public statements must be guarded and carefully thought out. In this emergency, the Secretary falls back on his conferences with the newspaper men. The press conferences

are held in a room in the State Department and no unauthorized person may be present. It is not true in Washington as it is in foreign capitals, however, that separate conferences are held for the home correspondents and for those who represent foreign newspapers.

With his far-reaching army of workers over the world, it is not strange that it is upon the Secretary of State the task devolves in any great disaster or emergency of caring for the Americans abroad who may be in distress. It was thus that the diplomatic and consular services, on the outbreak of the World War, became the centers of relief for the thousands of Americans who had been caught unawares in the belligerent countries. Millions were distributed to them when the banks abroad were closed. Each embassy or legation or consulate became a rescue station and was swamped with Americans, many of them wealthy but unable in the confusion of war to obtain money for food and shelter. The gold was rushed abroad in a cruiser and detachments of the ship's crew carried it to the ambassadors or ministers in inland capitals. In one instance two marines were given the task of moving $20,000 in gold across a frontier where train service had been suspended and where there was no other means of transportation over a gap of several miles. The gold was in kegs which could not be carried. But they could be rolled, and rolled they were. Badly battered, but with their contents intact, they were finally turned over to the embassy and the penniless American refugees. More recently, it was through the American embassy at Tokio and the American consulates elsewhere in Japan, that relief measures, not for Americans alone, but for stricken Japanese as well, went forward almost as soon as the great tremor that wrecked cities and brought death to tens of thousands had ceased to vibrate. The long arm of the Government reaches across the seas.

III

THE TREASURY DEPARTMENT

THE Treasury Department of the United States handles more money than any other one institution on earth. As the national tax collector, as the supervisor of the monetary and banking systems of the Nation, as the conservator of the national credit, and as the guardian of the financial resources of the country, this department occupies a position of unique importance. The Government is one vast business entity, and the Treasury is that entity's purse. Every other governmental activity is directly connected with it because all Government expenditures are taken from the Treasury coffers. Therefore, the business of all Government agencies also is the business of the Treasury. It is a sort of master department for the entire governmental establishment.

The collection agency of the Government is the Bureau of Internal Revenue. It has 65 districts throughout the United States. Prior to 1917 the relations of the bureau were with a relatively small number of firms and individuals engaged in specified occupations. Within a brief period after the declaration of war with Germany, the bureau was transformed into an agency that reaches millions of citizens. In one year, operating under extraordinary legislation occasioned by the need for large revenues, collections increased from $800,000,000 to $3,500,000,000.

From the date of the organization of the bureau in 1862 until 1909 the main sources of internal revenue—distilled spirits, fermented liquors, and tobacco—remained practically unchanged. The act of August 5, 1909, inaugurated the present system of income taxes and authorized an excise

tax on corporations. In 1913 the Constitution was amended to permit the imposition of taxes on all incomes, and legislation was enacted renewing the tax on corporations and, for the first time, taxing the income of individuals.

The income tax to-day is the chief source of revenue. Approximately 7,000,000 individual returns are filed annually, not all of which, however, are taxable by reason of the exemptions and credits. The intent of the tax law is that each person shall pay in proportion to his income. The man of moderate means pays only a normal tax, which, under the act of 1921, was 4 per cent on the first $4,000 of net income above his exemptions and credits, and 8 per cent on the remaining net income. The man of larger means pays, in addition to the normal tax, a surtax, the rates ranging under the 1921 act from 1 per cent on the amount of the net income between $6,000 and $10,000 to 50 per cent on the amount in excess of $200,000. On a taxable net income of $200,000 the Government collects $85,120. On a million-dollar income, all of which is taxable, the taxpayer pays $550,720. These figures are based on the income of one who has no dependents. In 1914 there were reported sixty incomes of $1,000,000 and over; in 1915, one hundred and twenty; in 1916, two hundred and six; in 1917, one hundred and forty-one; in 1918, sixty-seven; in 1919, sixty-five; in 1920, thirty-three, and in 1921, twenty-one.

In the miscellaneous taxes, which embrace all taxes except the income tax, are included those on estates, telegraph and telephone, beverages, oleomargarine, tobacco, admissions and dues, sales by manufacturers of automobiles, pianos, candy, firearms, yachts, sculpture and paintings, carpets and rugs, jewelry, perfumes and cosmetics, capital stock, occupations, and stamp taxes. Collections from these sources for the fiscal year 1923 aggregated approximately $932,000,000. The tobacco tax is one of the larger producers of revenue, amounting for the fiscal year 1923 to more than $300,000,000. Statistics reveal that cigarette smoking in-

creases each year, the latest figures showing an annual consumption of more than 60,000,000,000 cigarettes.

The growth of the Internal Revenue Service is an interesting chapter in history. In 1791 Congress, to meet the Revolutionary War debt, enacted into law Alexander Hamilton's suggestion for a tax on distilled spirits. The whisky rebellion in western Pennsylvania was an outcome of the efforts to enforce this legislation. In 1802 the tax was abolished, but was restored 10 years later to provide funds for the second war with Great Britain. The tax was again discontinued in 1817, and, until the outbreak of the Civil War, the country was practically without internal revenues. In 1861 internal revenue legislation again was enacted, and the Bureau of Internal Revenue was created by act of July 1, 1862.

Its growth is recorded by its collections. Internal revenue receipts for the fiscal year 1863 amounted to $40,000,000, and until 1918 the total was always reckoned in millions. Billions became the common term in 1918 and the peak was reached in 1920 when $5,400,000,000 was collected. In 1923, as a result of downward revision of the rates and the repeal of certain taxes, the receipts had decreased to $2,600,000,000. The Bureau of Internal Revenue reaches into every section of the United States, the Philippines, Hawaii, and Alaska. Every American citizen is subject to the income tax regardless of his residence, whether abroad or in the United States. The tax follows the flag.

The most interesting part of the physical work of the Treasury is the manufacture of money. For this purpose it maintains an establishment known as the Bureau of Engraving and Printing in which an average of $11,000,000 is printed each day. The paper used is of the toughest linen and is made by a secret process protected by statute penalizing its manufacture for other purposes. Supplies of blank paper are guarded as carefully as the finished money, for if a counterfeiter can obtain this distinctive paper, he has made a good start toward producing spurious currency. The fibers from

which it comes may once have been in the garments of babies, the confirmation robes of children, or the graduation gowns of girls. After leaving the rag bag, the fibers go to the paper makers. Perhaps they come back as money to dower the bride who wore them as a baby.

The plates from which money is printed are made with the most exacting care. The public is not permitted to see the engravers at work, nor does any one engraver prepare an entire plate. It usually takes about a year of continuous work to complete one of the original plates. The money never is printed from these originals, but from duplicates made by a mechanical process. If this were not so the difficulty of detecting counterfeits would be enhanced. The fine lines on paper money are made upon the original plates by a geometric machine which has as many combinations as the best safe lock, each combination producing a different design. Until the appearance of the counterfeit Monroe head hundred-dollar bill in 1897, it was thought that these lines could not be imitated. The portrait on a bill is regarded as the best guarantee against counterfeiting.

One of the most thorough systems of accounting in the world has been installed to insure the Government against loss during the process of printing. Out of the $11,000,000 of paper currency printed every working day in the year, only one piece goes astray in every three or four years. In such cases, the workmen in the room from which the paper disappears, even though all the evidence indicates an innocent loss, have to pay the printed value. Each bill contains many symbols which tell the initiated from what plate it was printed, who engraved the plate, and who printed the bill. It requires about 20 days to complete the intricate process of getting a piece of paper money ready for circulation, during which period it is counted about 50 times. It costs the Government about one cent and a half to issue each national-bank note, and nine-tenths of a cent for each United States note and certificate, and costs less then one-tenth of 1

per cent to maintain the paper circulation of the country. One-half of 1 per cent of the money issued never comes back. Uncle Sam is the gainer every time a piece of paper money is lost, for he will never be under the necessity of redeeming it with gold. He maintains a force in the redemption bureau where torn, burned, or otherwise damaged currency may be redeemed. If three-fifths of a damaged note is sent in, the bill may be redeemed at face value; if less than three-fifths and more than two-fifths be sent in, half value will be given. Any part less than two-fifths is not redeemable unless proof be furnished showing that the remainder was totally destroyed. From the San Francisco fire came many charred notes, most of which were redeemed, while bits of fabric taken from a cow's stomach and tiny shreds of green and yellow paper that had gone through a threshing machine have proved to be redeemable currency when brought under the keen eyes of Government experts.

The average life of paper money in the United States is less than two years. The low denomination silver certificates get into the macerator, the machine with which worn-out money is destroyed, and which chews up a million dollars at a mouthful, in one and a half years after they start their rounds of the pocketbooks of the country. Treasury notes last nearly two years. The average yellow-back gold certificate is able to continue its travels nearly three years. The largest denomination paper money is $10,000. Notes of high denominations, though rare in ordinary circulation, are prized by banks for use as reserves as they occupy very little space in the vaults and are easily counted. Twelve pounds of ten-thousand-dollar notes would take the place of 1,200 tons of silver or of 76 tons of gold in a bank vault.

The seal which appears on the paper money of the United States is a relic of the days antedating the Constitution. The words abbreviated are "Thesauri Americae Septentrionalis Sigillum." In English these words mean, "Seal of the Treasury of North America." To those well informed in

history this tells of a time in American annals when it was hoped that Canada would become a part of the United States. The die from which the present seals are made was prepared in 1849.

The processes of coining metallic money are no less interesting than those of making paper currency. Anyone may take gold to the United States Mint and have it coined. After the metal has been assayed to ascertain its degree of purity, it is next put through a process which removes all foreign material. As pure gold would be too soft for money, an alloy is added to give it the proper degree of hardness to withstand handling. Next, it is put through what is known as an annealing process, which heats and softens the metal. Then it is run between rollers, heated and worked over again, and put through rollers once more, until it becomes a thin strip. This in turn is put through a giant stamping machine, which acts like a huge cake cutter, making hundreds of little golden cookies out of the strips. These little golden cakes next are put into a huge squeezing machine, with engraved dies above and below them, and are squeezed with a pressure of 275 tons. When they come out they are coined money. The same mechanical process is used in the making of silver, nickel, and copper coin.

The Government makes a profit on all coins except those of gold. The difference between the actual value of the metal in a coin and the face value of the coin is known as seigniorage. The metal in a 1-cent piece is worth only a small fraction of its face value; the remainder represents a clear profit to the Government. Every time a coin is lost Uncle Sam makes the difference between its actual value and its face value. That many coins are lost is shown by the fact that although the little half-cent pieces that were issued many years ago are very seldom seen nowadays, over 8,000,000 are outstanding; that is, they never have been returned to the Treasury. It is estimated that 6,000,000 of these have been lost forever. The 2- and 3- cent pieces also are scarce,

and yet more than a million dollars' worth of them never have come back to the Treasury.

The war brought fascinating new duties and experiences to the mint. The war taxes on soda-water, candy, tobacco, and luxuries amounted to one or more pennies on each purchase; almost invariably the tax was in odd cents. This meant an overnight increase in the public demand for pennies. The coin factories of the mint which, up until that time had been operating comfortably, were forced to work 24 hours a day. To illustrate the extent of the increased demand, in 1915, just before the war taxes were levied, 55,900,000 pennies were made by the mint. In 1919 the mint turned out 588,900,000 pennies. The repeal of many of these taxes stopped the abnormal demand and the coinage of 1-cent pieces dropped in 1922 to 54,400,000.

The coinage of silver dollars was stopped in 1904, their use having died out except in the far West, paper money being generally preferred. During the war, Great Britain appealed to us to assist her in obtaining silver to send to India, where the demand was heavier than she could meet. The Pittman Act was passed, authorizing the sale to our English ally of the stock of unused silver dollars which had accumulated in the Treasury. Of the 350,000,000 of these dollars, 259,000,000 were melted and sent to India. The same act authorized, at the end of the emergency, the repurchase of silver to recoin the dollars that had been melted. The act fixed a price of $1 per ounce to be paid for silver and in 1921 the coinage of silver dollars was resumed.

This reveals the important difference between gold and silver money. Gold remains stationary in price; silver varies, just as potatoes and shoes vary in price. The war demand raised the price of silver to a peak of $1.42 per ounce. This was in June, 1920. In 1913 an ounce of silver cost about 50 cents. By 1922 the price was back to 70 cents. An ounce of silver makes $1.38 worth of half dollars, quarters, and dimes. Therefore, when the price of silver reached $1.42,

silver coins were worth more as metal than as coin. In such cases, exportation is prevented. The provision of the Pittman Act authorizing payment of $1 per ounce for silver stabilized the price of silver produced in the United States. In addition to making coins for the United States, the mint takes contracts to do such work for foreign countries which do not have mints of their own. On these contracts the mint makes a profit just as if it were a private manufacturing establishment.

A peculiar fascination attaches to the bureau of the Treasury known as the Secret Service. Contrary to popular impression, this is not the police department of the Government. The Secret Service has two principal duties—the suppression of counterfeiting and the protection of the President. It also enforces the penal clauses of the Farm Loan and War Finance acts. Counterfeiting is the task which chiefly engages its attention. The best guardians of the Nation's currency are the bank tellers and clerks in commercial establishments skilled in the handling of money. They detect nine-tenths of the counterfeit notes, coins, bonds, stamps, and checks.

The counterfeiter of to-day takes advantage of every modern process in his work and by using photomechanical methods is able to produce results which deceive the careless handler of money. How comparatively little counterfeit money there is in circulation is shown by the fact that out of some $3,000,000,000 which passed through the hands of Treasury officials, less than $12,000 in bad money was found.

In recent years paper money has been counterfeited more frequently than coin. This is due largely to the fact that the price of even the base metals has greatly increased in the last decade. There have been cases where counterfeit coins were worth more than the genuine coins they sought to imitate. In former times platinum, which has about the same weight as gold, was worth only one-third the yellow metal. It was used to adulterate gold coin. The value of platinum

now has increased so much that such an adulterated coin is worth more than a genuine one. A band of counterfeiters in Mexico coined a lot of silver dollars and later it was discovered that each contained $1.09 worth of metal. There was a streak of gold in the silver used.

Realizing that motion pictures or other pictorial presentations of counterfeits or counterfeiting processes might prove an incentive to crime, the display of such pictures is prohibited by law. Purely pictorial and artistic oil paintings giving good likenesses of money have been confiscated as coming technically within the prohibitions of the law. Curious early issues of genuine currency sometimes prove embarrassing because of their unfamiliarity. Recently a traveler was arrested for attempting to pay his host with counterfeit money. It was discovered that the $100-note with a red back which he presented was a genuine gold certificate of 1866. The compound-interest note of 1864, printed on only one side, would not be accepted to-day by one man in a thousand on account of its unusual appearance, but as a matter of fact it is worth more than its face value.

The war brought about two important changes in the counterfeiting world. Most counterfeiters are not native Americans. The war called them home and counterfeiting of currency fell off. On the other hand, the war produced numerous issues of Liberty bond coupons, Treasury warrants, thrift stamps, war-savings stamps, and Treasury checks for Army pay and pensions. A whole new field of counterfeiting thus was opened up, and the Secret Service has been kept busy suppressing spurious imitations. With the coming of prohibition, bootleggers counterfeited liquor-tax stamps. The Secret Service keeps abreast of all these illegal operations and as a result counterfeiting is not a profitable business. It is the observation of students of this type of crime that a man who has skill enough to be a counterfeiter could make more money by devoting himself to legitimate pursuits. There is no instance of a counter-

feiter's growing rich. The careers of these malefactors are short-lived and their jail sentences long.

An important source of revenue to the Federal Government is the customs duty on imports and the Treasury Department has in charge the administration of the tariff law which levies this tax. Collections now are being made at the rate of more than $600,000,000 a year and are increasing. Since the foundation of the Government some $17,000,000,000 has been collected in customs duties. Two-thirds of all customs business of the United States is done at the port of New York, where it costs less than 2 cents to collect each $1 of duty. Elaborate precautions are taken to prevent the smuggling into the United States of goods properly subject to tariff duties. Men conceal diamonds in secret holes in the heels of their shoes, women wind rare laces and silks around their bodies or sew New York or Chicago tags in Paris gowns to escape payment of duties which are specially high on luxuries. Vessel owners sometimes attempt to land cargoes on lonely coasts where there are no customs officers. The Special Agents Service of the Customs Division maintains a card index of every known smuggler in the world and closely follows his movements. Reports of all big purchases of jewels or other valuable goods abroad are made to the Treasury Department by its foreign agents and the officers are on the alert when meeting the incoming ships. Smuggling of the prohibited smoking opium specially exercises the officers' vigilance.

The tariff laws afford many anomalies. For instance, pearls come into the United States as precious stones, dutiable at 10 per cent when unstrung. When strung they must be entered as jewelry, dutiable at 80 per cent. Some years ago there was a steady importation of single pearls and the suspicion was aroused that they were intended for use as a single strand. The authorities took up the case, declaring that these separate imports were an evasion of the law and that these pearls in reality were specially matched to make

a strand. The selecting and matching, rather than the actual presence of the pearls on a string, was declared to constitute the difference. On this theory a duty of $110,000 was levied on the lot. The case was carried by the importer to the Supreme Court, which decided that $18,000 was the proper duty, the absence of a string saving the importer $92,000 in duty. Another anomaly is that a piece of goods may be taxed as linen to-day and as cotton to-morrow. The law provides that textiles shall be rated according to the ingredient of highest market value. In market fluctuations, linen may be higher one day and cotton the next.

In an emergency, such as war, when the ordinary revenues are inadequate to meet the public needs, the Treasury borrows. The World War brought about the greatest era of public borrowing in the history of the Nation when approximately $25,000,000,000 was lent by the people on the credit of the Republic. Four million persons subscribed to the First Liberty Loan; 9,400,000 to the Second; 18,308,325 to the Third; 22,777,680 to the Fourth; and 11,803,896 to the Victory Loan. Thus the total number of subscribers equaled nearly a quarter of all the people in the country. In addition to the Liberty bonds, about $2,000,000,000 was borrowed from the public in small amounts through the medium of the little, green thrift stamps and war-savings stamps. Billions were borrowed from the big banks who bought securities called Treasury certificates of indebtedness. Of these vast sums, approximately $10,000,000,000 was loaned by the United States to our European Allies to assist them in the prosecution of the war against Germany.

In selling the Liberty bonds to the American people, the Treasury organized the greatest sales campaign in the history of the world. Fifty thousand citizens, who styled themselves Four-Minute Men, made four-minute speeches many times a day wherever audiences could be gathered. Men, women, and children were organized into committees for selling the bonds. In addition to gathering money to enable the Gov-

ernment to finance the war, these campaigns are credited with having taught literally millions of Americans how to save and to invest their savings in sound securities. The bond salesmen were volunteers, working at no expense to the Government. Banks, business houses, and every branch of activity freely contributed aid in selling and buying the war bonds. Before the war the national debt of the United States was approximately $10 for each man, woman, and child. At the peak of the war, this per capita debt reached about $275.

When Andrew W. Mellon assumed the Treasury portfolio, he was confronted with innumerable problems involved in the transition from war-time extravagance to reconstruction economy. It was his task to restore the Government's credit, as reflected in the market prices of Government securities, and to reduce the public debt. How well he accomplished the seemingly impossible is shown by his report that in three years the debt had been reduced by $2,000,000,000, with an annual saving in interest charges of almost $100,000,000, while Government bonds were selling around par. Commentators pronounce his achievement unparalleled.

Experts declare the United States now has the most efficient money and banking system in the world. The Federal Reserve act was approved December 23, 1913, setting up an entirely new system of issuing paper money against business credit and gold. The Nation is divided, under this system, into 12 districts and a Federal Reserve Bank is established in each one. These banks have branches in other cities, and all national banks are members of the Federal Reserve Bank. Qualified State chartered banks may join at will. Each member bank subscribes to the capital stock of the Federal Reserve Bank in whose district it is located. The Federal Reserve Bank of New York is one-fourth as great in resources as all the other eleven put together and may be regarded as the biggest bank in the world.

Federal Reserve Banks are primarily for the use of banks,

not for the direct use of individuals. They accept no deposits from the public nor do they make loans, save to their member banks, through a banking operation known as discounting. A shoe manufacturer buys $10,000 worth of leather. He lacks the cash to pay and borrows from a member bank. When the bank makes so many such loans that it has no more funds to lend, it takes the notes to its Federal Reserve Bank and discounts them, obtaining Federal Reserve notes which are circulating currency. This enables the member bank to accommodate more borrowers. The Federal Reserve Bank has become the creditor of the shoe manufacturer and holds a note, secured by the actual leather bought, as surety for the money. In addition, it must hold, by law, at least 40 per cent of the amount advanced in gold. Thus, the $10 Federal Reserve note you have in your pocket has back of it at least $4 in gold and $6 in a valuable commodity. In practice, discount demands rarely are large enough to bring the gold proportion down to $4 in $10. It usually is about $7 gold and $3 in goods. Government bonds may make up the difference between the gold security and the full value of the Federal Reserve note, depending upon what security has been put up by the borrower. The virtue of the system is that when there is heavy demand for money, the quantity of available currency automatically increases through this discounting operation; when demand is light, the currency contracts so as to prevent money from becoming cheap. When the shoe manufacturer has made his shoes and sold them, he repays his note to the member bank and the member bank repays the Federal Reserve Bank. The whole operation takes from 30 to 90 days.

The Federal Reserve Banks also maintain a par check collection system. Before the development of this system, a man cashing in Chicago a check on a New York bank had to pay an exchange charge amounting to a few cents for each $100. Now, over most of the country, the operation of the Federal Reserve system has made checks good for the full

amount for which they are drawn. This saves the American people $75,000,000 a year in exchange charges, and makes a check as ready a medium as a bank note for business purposes.

Most of the paper money now used is Federal Reserve currency, issued in the manner described. Of the $4,500,000,000 of money in circulation, nearly $3,000,000,000 is Federal Reserve currency. The Federal Reserve Banks are the fiscal agents of the United States and in that capacity were the chief agencies for the selling of the Liberty bonds during the war. They take the place of subtreasuries, which have been abolished. The governing body of this vast banking system is the Federal Reserve Board at Washington. The Secretary of the Treasury is chairman by virtue of his official position, and for a like reason the Comptroller of the Currency is a member. Six other members are appointed by the President. These men stand at the head of the Nation's money system. Each of the 12 banks has a governor and other officers and directors, a majority of whom are elected by the member banks of its district, the others being named by the Federal Government.

More than half of all of the gold in the country is in the custody of these Federal Reserve Banks. The Nation's stock of gold is nearly $4,000,000,000, which is more than any other country ever held in the history of the world. Of this, the Federal Reserve Banks have nearly $3,000,000,000.

As a monetary agency, the Federal Reserve system supplemented the national banks, and the latter still continue as member banks of the new system. They number more than 8,200 and have capital aggregating over $1,300,000,000 and surpluses of over $1,000,000,000. Their loans to the public amount to more than $11,600,000,000 and their deposits exceed $16,000,000,000. They issue national-bank notes which are secured directly by Government bonds and which are different from Federal Reserve notes. National-bank notes in circulation amount to over $725,000,000. The Comp-

troller of the Currency is the official who regulates the operations of national banks and enforces the laws governing them for the protection of the public. In addition to these banks there are more than 20,000 State chartered banks in the country not under Federal supervision. These have deposits of the people's money amounting to some $23,000,000,000.

The old-fashioned melodrama never was complete if its tangled plot did not include a mortgage on the old farm. Almost invariably the holder of the mortgage was the villain. Uncle Sam has adopted the rôle of mortgage holder, but, so far, has not proved so much of a villain as a benefactor. He operates the Farm Loan Bureau. Any citizen, from the owner of a small celery patch or chicken farm to the holder of broad acres of prairie, can borrow on his property through this system established by the Federal Government. He may have 30 years in which to repay the loan and the interest rate is less than the prevailing private rate. Scores of thousands of farmers in all States have availed themselves of this facility. At the head of the system is the Farm Loan Board, of which the Secretary of the Treasury is ex officio chairman. There are 12 Federal Land Banks in as many districts into which the country is divided, and also some 70 joint stock land banks, organized under the act. The Federal Land Banks were started with Government capital; the joint stock land banks are Government-regulated, but employ private capital. This farm-mortgage system has made loans to American farmers aggregating $1,250,000,000. The largest loan which can be made under the law is $25,000. Theoretically, there is no minimum limit, but in practice $100 has been the smallest loan. Farmers desiring this assistance organize themselves into National Farm Loan Organizations, a sort of cooperative credit society, and through these they make their loans at the Federal Land Banks. Four thousand five hundred such associations have been formed. Still another credit system for the farmer has been devised. Twelve Intermediate Credit Banks are in existence. The

Federal Land Banks lend upon farm mortgages; the Intermediate Credit Banks make loans of shorter periods to finance growing crops.

In the time of war the Government has a direct interest in how the people spend their money. To discourage offerings to the public of what are known as blue sky stocks and bonds —that is, securities of doubtful or purely speculative value— the War Finance Corporation and the Capital Issues Committee were created by Congress. They maintained their offices in the Treasury, acting in close cooperation with the department. The Secretary of the Treasury is chairman and the Secretary of Agriculture and four others are directors. The Capital Issues Committee passed upon the propriety of private issues of securities in war time and, since the Armistice, has ceased to function. The War Finance Corporation was authorized to use $500,000,000 of Government capital in making loans to industries engaged in assisting in the prosecution of the war. Most of such industries were munition plants, shipyards, and similar enterprises; but in one case a street car company got a loan because it was operating a line used very largely by workers in a munitions plant and so indirectly was doing its bit. Most of these loans have been repaid and now the corporation is engaged in making loans to farmers, exporters, and cattle raisers. It is credited with being the financial salvation of thousands of farmers in years of low prices or poor crops. Its board of directors sits constantly at the Treasury Department.

In the Treasury is located the biggest bookkeeping department in the world. It is the General Accounting Office, at the head of which is the Comptroller General of the United States. He, with his staff of expert auditors and accountants, keeps the books of the whole governmental establishment and has broad powers of deciding what expenditures are legally authorized. Questions involved range from the cost of a battleship to the cost of a pen point. The Comptroller General's decision in such matters is final. Some years ago, the

predecessor of the present official, then called the Comptroller of the Treasury, was asked to decide whether a tip is a legitimate traveling expense of Government representatives. His decision was that a 25-cent tip to a Pullman porter for a day's ride is warranted by the law. The same care is used in deciding cases involving small sums as large ones because of the principle involved. A whole legal opinion of the Comptroller was handed down in one case involving the legality of an expenditure of 10 cents.

The Bureau of the Budget performs for the whole Government the function of guarding the national purse. It is in the Treasury Department, but not under its jurisdiction or direction. It is under the immediate direction of the President and operates under his instructions. It is the President's agency for handling the details involved in the preparation of his estimates of appropriations for the ensuing year, estimates of receipts and expenditures of the Government for the prior, current, and ensuing years, and statements relative to the financial condition of the Government. The President is required by law to transmit The Budget to Congress on the first day of each regular session. The Budget receives from all the executive departments, boards, commissions, and other independent bureaus and establishments estimates of appropriations which in their judgment will be necessary for them to perform properly the functions imposed upon them by law. Pursuant to policies determined by the President these estimates are assembled, correlated, revised, reduced, or increased, and then included in The Budget, which is transmitted to Congress by the President. When Congress has passed appropriation acts and they have been approved by the President, the various Government agencies then may draw on the Treasury for authorized expenditures just as an individual draws on his bank account, but each must keep within its appropriation just as an individual must avoid overdrawing at his bank.

Closely associated with the Treasury is the World War

Foreign Debt Funding Commission, of which the Secretary of the Treasury is chairman. It has the huge task of arranging for the collection of the more than ten billions owed the American Government by our Allies in the World War. Its first task was accomplished when the war debt of Great Britain was fixed on a definite basis. An arrangement was made whereby the British people make payments to the United States just as a man pays for a house on the installment plan. Beginning at the colossal sum of $4,600,000,000, the British started with an initial payment of $161,000,000 for the first year. A payment of approximately this amount must be made every year for 62 years, at which time the entire debt will have been paid. When that is accomplished, more money will have been received in interest than in principal as the interest payments will total $6,505,965,000 and the entire aggregate to be received from Great Britain will amount to $11,105,965,000. Children born when the money was loaned will be old when the last dollar is paid. At the time the debt was contracted it amounted to a loan to Great Britain of approximately $46 from each man, woman, and child in the United States.

The debt of Finland has been funded on a basis of $9,000,000. It also will be amortized over a period of 62 years. The whole debt amounts to approximately 9 cents for each American. The total indebtedness of the Allies to the United States was $10,609,793,000 before the repayments began, which means that each American had lent about $100 to European Allies to carry on the war. More than a billion dollars had accrued in unpaid interest when the commission began its negotiations to arrange for installment payments. With the repayment arrangements with Great Britain and Finland completed, each American still has due him approximately $54 from the European Allies.

IV

THE PUBLIC HEALTH SERVICE

YOU have a better chance than your forefathers had of living your allotted three score years and ten, because you live in a more healthful time. Two hundred years ago the average span of life was only 20 years on this danger-infested globe. Half a century ago, this country had succeeded in stretching this to 40 years. Now the 56-year mark is reached; and it is predicted that 25 years from now the average American will live 70 years.

A number of Government bureaus are doing work that helps to stretch the lifeline, but one branch of the Treasury Department, the Public Health Service, is dedicated particularly to this task. To discover why the public health should be guarded by way of the Treasury Department it is necessary to go back to 1798. Sailors who manned the merchantmen of the New Republic sometimes contracted strange diseases in foreign ports, and it was obvious that these diseases might spread over this country unless patients were systematically cared for. So a Marine Hospital Service with hospitals in important ports was established by the Government. To help finance the project each seaman was taxed 20 cents a month, and as the 20 cents was collected by the Treasury, the new bureau, which was later to become the Public Health Service, was assigned to that department.

Ever since then, the States and the Federal Government have waged systematic warfare against the invasion of diseases from abroad. We hear so little now of the five great plague diseases—cholera, typhus, yellow fever, bubonic plague, and smallpox—that we scarcely realize that they are

kept out only by unceasing watchfulness. Last year five cases of yellow fever were stopped at the quarantine stations. Only one case of cholera has passed quarantine officers in 30 years, and that one was caught before it caused any trouble. Admission of a single diseased person may infect others and produce a veritable endless chain of suffering. Consequently, every one of the 96 ports of entry in this country is guarded by quarantine officers, in order to exclude immigrants who have certain diseases, or who are carriers of such diseases. In one year out of half a million immigrants examined by the Federal Government 1,234 were excluded because of infection with "loathsome contagious" or "dangerous contagious" or quarantinable disease. This figure is comparatively small because for several years the Public Health Service has maintained officers stationed in important foreign ports to see that persons embarking for ports in the United States are not permitted to sail if they are suffering from such diseases. Because of this system of foreign inspection there is less chance of disease being spread on shipboard, and a good many foreigners are saved from making a hopeless journey to our shores.

Dealing with rats that become stowaways on merchant ships is always a health problem. The Public Health Service and the States cooperate in trying to make water fronts and ships rat proof and in trapping and killing these pests. Nevertheless, the rat population is on the increase, and with rats go fleas and diseases. One scientist counted 2,000 plague bacteria in the stomach of a flea.

The States and local governments handle their own health questions, but the Public Health Service has charge of preventing interstate spread of disease. A standard sanitary code, adopted by most States, forbids persons suffering from the great plague diseases to travel on trains and ships. The code provides that persons infected with other contagious diseases may travel by arrangements which do not menace the health of fellow passengers.

The water supply of trains has for some time been inspected by the Public Health Service as a precaution against typhoid and other water-borne diseases. It was predicted that agents could not follow up a moving train to see that it did not fill its drinking tank at a polluted source, but the water-inspection service proved a success, and it has recently been extended to steamships on our lakes and rivers and along the coasts. The growing industries of the country have brought new water pollution troubles. It has been found that waste water from canneries, mills, and other industrial plants contains chemicals and poisons, and this waste carelessly disposed of may find its way to springs, bathing beaches, and oyster beds with disastrous results. The waste from each industry represents a separate problem, but the Government has established general principles for disposal and it is pointing out to individual concerns how they can in many cases render the waste harmless.

It is an indication of our growing wisdom that we no longer argue that water causes typhoid and therefore we should not drink water. Not so many years ago the public was warned against the perils of drinking by lantern slides showing drops of water highly magnified. On a huge screen minute organisms became hideous monsters and the moral was: "These creatures live in the water you drink." Since then, people have learned to drink pure water and to shun polluted sources. The typhoid death rate has dropped enormously, and the Public Health Service predicts that when the country is thoroughly organized for clean drinking water, typhoid will be as rare as smallpox and as much feared.

The Government health bureau spends a good deal of time investigating disease mysteries. At its Hygienic Laboratory scientists are studying tuberculosis, dysentery, rabies, syphilis, smallpox, and many other diseases. There is probably no place where a germ can receive a more cordial welcome or live a more eventful and useful life than at this laboratory. Germs of any distinction at all are treated with

great consideration. Special food is cooked in a shiny, white kitchen for the enormous number of these laboratory boarders. Most disease germs like beef; and in a white, glass-front cabinet one can see rows of squat glass bottles containing various kinds of carefully prepared bouillon. About 300 pounds of fine grade lean beef went into the bottles on these shelves, a laboratory pathologist explains. This is about a week's ration. The food must be prepared fresh every few days for the discriminating bacteria. Some of the soup is put up with sugar to suit certain germs. Others prefer salt. The bacteria go from the kitchen in test tubes that are partly filled with their favorite food so that they may grow and multiply. Sometimes the laboratory experts work off and on for 10 or 15 years, using endless generations of a bacteria family, in an attempt to develop an antitoxin or merely in the hope of adding some bit of knowledge to treatment of a malady.

In one interesting room of the laboratory bits of tissue are prepared for study. These samples are sent in by Government doctors from all over the country. Some are taken from persons who died of diseases that were never diagnosed. Others are samples of diseased tissue taken from persons during surgical operations. They are sent to the Government for identification of disease. A piece of tissue about the size of a thumb is first frozen by a complicated little instrument. Then a knife device cuts off layers, which are mounted on glass slides for examination under a high-power microscope. Paper is often used as a comparative term of thinness, but so thin are these slices of tissue that it would take about 100 of them to build up the thickness of onionskin paper. Even in these fine layers of tissue the scientist may find thousands of disease germs with his microscope. And these are the larger kinds of bacteria. The germs of the commonest of children's diseases, chicken pox, mumps, and measles, have never been seen. They defy the best enlarging apparatus, and they slip through the finest filters.

The devotion of scientists to science is amply demonstrated in the Public Health Service. One doctor who was studying typhus fever regularly fed a small colony of lice by placing them on his wrist under a glass. His observations confirmed the theory that the louse was responsible for typhus—incidentally the doctor contracted the disease. Tularaemia is a recently discovered disease which the Government is studying. Every employee who has worked with tularaemia has caught it at one time or another. But the work goes on.

An extremely important function of the laboratory is the standardization and supervision of biological products. All virus for vaccination, all diphtheria antitoxin, and similar materials must measure up to the standards of strength and purity set by the Government or they can not be sold in interstate commerce. Without some central agency to do this there would be great danger of infection. In the case of pneumonia serum and some other products, a manufacturer must send samples of every lot made to the Hygienic Laboratory. Here they are analyzed and tried out on laboratory animals. If the animals die, or if the sample does not contain the exact proportion of ingredients as stated, the lot must be destroyed. Since this means serious loss to a firm these materials are prepared with great care and comparatively little is rejected.

Salvarsan, used in treating venereal disease, requires extremely careful manufacture and is included in the supervised list. The efficiency of salvarsan depends on the amount of arsenic it contains. If there is too much, the patient will die; if too little, he gets no benefit. It was a long time before an eminent chemist obtained this preparation of arsenic which is strong enough to cure but not kill. To make sure that it is just right a sample dose out of every lot made is injected into rats, because the rat responds to this drug in a very satisfactory manner for testing purposes.

Rabies vaccine is the least used and the most expensive of the vaccines, but it is one of the most valuable because it

is the only known preventive of hydrophobia. A person who is bitten by a mad dog and who receives the vaccine treatment at once has only one chance in 200 of dying of rabies; but if the symptoms develop before the first injection is made, there is no remedy.

The Hygienic Laboratory is now establishing a standard for insulin, a product made from the pancreas of an animal, which is used in treating diabetes. When antitoxin was discovered, the laboratory was given the difficult task of standardizing it. The present method of preventing diphtheria by immunization is considered by the Government to be of the utmost importance because few diseases have had such high mortality records as diphtheria. It has frequently happened that all the children in a family were swept away in spite of medical attention. Since the discovery that diphtheria can be prevented, deaths from the disease have been cut in half in New York City.

The service has done important work in studying leprosy, one of the most baffling maladies known to man. There are somewhere between 500 and 1,500 lepers in this country—many of them at large. A national leper hospital has recently been established in Louisiana, but a leper discovered in a community is often kept by local officials as a solitary and miserable outcast until he escapes in desperation. In Hawaii and the Philippines cases are far more prevalent.

When the bacillus of leprosy was discovered a few years ago, the leprosy laboratory of the Public Health Service set out to determine whether or not animals could be inoculated with it and a serum obtained to cure the disease. But 4,000,000 deadly bacteria injected into a guinea pig, a rat, rabbit, or horse, left each animal untainted. Almost the same thing is true of human beings. Of the few men who have allowed themselves to be inoculated, one case stands out in which the subject apparently became leprous as a result of this experiment. This man, a Hawaiian convicted

of murder, was given the choice of hanging or inoculation with leprosy. He agreed to become a subject of experiment, and in two years he developed the disease. Several years ago a way of injecting chaulmoogra oil was found by Government doctors and tried out at the Hawaiian leper colony. Since then nearly one-third of the patients in the early stages of leprosy in Hawaii have been released as being no longer a menace to public health, and only a small percentage of the paroled cases have relapsed.

Investigations made by the Government health scientists are of little use until the discoveries are made known and applied. The Public Health Service presents some of its discoveries to the State health officials. Others are broadcasted direct to the public by bulletins, demonstrations, radio lectures, and pictures. A milk bulletin, issued by the service, is used as a textbook in a number of universities. Bulletins have shown the public what to do in case of accidents, the importance of good teeth, and how to avoid tuberculosis.

Considerable thought is spent in devising ways to show graphically the danger of disease and the need for practical prevention, because every person in the country is a factor in the spread or elimination of disease. The service keeps an artist busy at his easel making several hundred illustrations a year for bulletins. It has been found that a detailed verbal description of how a mosquito implants malaria parasites in the body is far less impressive than a highly magnified picture of the parasite entering the proboscis of the mosquito. A short description with the picture may tell how the malaria germ gets into the mosquito's salivary ducts and is transferred to the wound that the insect inflicts. The observer, seeing with his own eyes the enlarged mosquito in all its dangerous ugliness, goes out determined to slay the pests with increased vigor. The picture does it.

Microscopic plates were once regarded as the most convincing way of putting disease germs on exhibit. But every scientist knows that a microscope has to be carefully focused,

and a hasty peep is bound to be unsatisfactory. This led the Public Health Service artist to make some water-color paintings of highly magnified parasites on 5-inch squares of glass. Each of these was put in a box with a glass cover, so that focusing or squinting was unnecessary. By this method samples of typical dust from a city street were exhibited at an exposition in Rio de Janeiro. The pictures of ordinary dust 500 times enlarged showed that seven-eighths of the grains had cutting edges. Sharp grains of sand were in the dust and tiny cinders with saw-like edges, injurious to eyes, ears, and lungs. It was scarcely necessary to write on the label a plea for cleanliness.

Public health education, improved sanitation, and scientific war on mosquitoes, flies, and rats, are projects of the Federal and local health officials which are making life safer. But old-age diseases are developing to an unprecedented extent. Surgeon General Hugh S. Cumming says that never before have there been so much heart trouble, cancer, chronic Bright's disease, and artery troubles, partly because never before have there been so many elderly people. In time, no doubt, we shall attack these diseases systematically in youth before they start; but they are not epidemic diseases and at present the Government can do very little to protect the public in general against them. It remains for the individual American to apply our twentieth century knowledge regarding health and to do his own share in getting a firmer hold on the coat tails of Father Time.

V

THE WAR DEPARTMENT

THE War Department met its supreme test in the World War. Once they had accepted Germany's challenge, the American people centered their every energy and every resource in the task of encompassing the defeat of the Central Powers, and the major responsibility of that tremendous mobilization devolved upon the military branch of the Government. To make certain of victory, the Army undertook war preparations along five major lines and upon a scale unprecedented even in that epochal conflict.

There were those who argued that man power would defeat Germany. The United States mobilized 5,000,000 men to go to France, or half as many as the total number of soldiers then in the struggle. Behind the first 5,000,000 the Nation prepared to call out another equal number if necessary. It required the arrival in France of only 2,000,000 of the first 5,000,000 to make Germany sue for peace. Hindenberg, the great German commander, in his postwar book, admits that Germany did not believe the United States could accomplish such a result. The German general staff learned the actual size of the American Expeditionary Forces only when it struck the German lines like a tidal wave.

There were those who argued that sufficient artillery would destroy Germany. The Army had in full swing when the war ended a gun production program that would have supplied all the allied forces, as well as the American Army, with all the guns of every size they could use. The largest guns actually used in the war were 16-inch weapons which hurled

shells weighing over a ton more than 15 miles. The Army was equipped, at the close of the war, to turn out 20-inch guns with a range of 25 miles and to throw shells weighing a ton and a half.

There were those who believed that aircraft would win the war. The Army took over the job of building them. The first step was the production of the Liberty motor, the most powerful aircraft engine turned out during the war. The next was to learn how to build airplanes. Before the war ended the forerunners of the American-built air fleet that would certainly have numbered tens of thousands of planes had arrived in France. At home the country was full of Liberty motors, so full that thousands could be spared for France, England, and Italy to use.

There were those who believed tanks would win the war. The Army undertook, in cooperation with the British, to turn out enough of these land battleships for both the American and British Armies. They were to range from the little two-men "whippets" to the great 40-ton "Mark VIII's" with 12 men and half a dozen guns aboard. The caterpillar traction idea that made tanks a possible weapon was an American idea. In the joint program, America fabricated part of the tanks and shipped them to England for completion and issue. Then, on its reserve resources, America started a separate tank program of its own greater than the whole joint effort. The Army has two score of the 40-tonners to-day as a result of that program.

There were those who argued that gas would win the war. The Army began the manufacture of gas on a scale no other country, not even Germany, could possibly attain. It mobilized scientific brains to produce new and more deadly gases. The war ended with the gas program just getting into full swing. Since the war, the United States, with other powers, has resolved against the use of poison gases as inhuman because the injury they do can not be confined to the fighting forces. Civil populations, without means of protec-

tion, are apt to be engulfed in wind-driven gas clouds intended for the troops. The American Army is to-day equipped to protect itself from gas attack, but would employ gas itself only after it had been thus attacked.

Thus the Army's program would have loosed upon Germany an avalanche of men, gunfire, air bombs, tank attacks and gas shells—if the war had lasted long enough. But when the armistice came, less than twenty months after the United States entered the struggle, only men and food and clothing and equipment procurable quickly from commercial plants had reached France in any quantity. Pershing was still borrowing guns and tanks and aircraft for his Army from the Allies. To-day industrial mobilization plans of the War Department are being shaped to avert so far as possible a repetition of such a condition of affairs, but even now it would require more than a year to put a gun program into actual production to meet the needs of an Army of a million men. It was obvious after the war that high qualities of leadership would be required in the necessary reorganization of the War Department. The selection of John W. Weeks, of Massachusetts, for this portfolio was a fortunate choice as he brought to the task wide legislative and business experience.

Once before the World War the American people were called upon to exert every effort of which they were capable. That was when George Washington led his armies to victory. As first President, from the lessons of that war, he outlined to Congress a definite military policy which would have kept America always ready to defend itself. Washington's program was ignored. In the years that followed, the United States was at war on a greater or lesser scale about every 30 years. But it was never ready when the emergency of war came. Always the armies were improvised with enormous unnecessary cost in men and money. It got ready to fight after the fighting had begun.

In 1920, with the World War fresh in memory, Congress

wrote the new National Defense act. It is the first definite military policy we have ever had for preparation in peace times of the means to raise, officer, train, and equip a citizen army sufficient to defend the Nation. And John J. Pershing, as General of the Armies and Chief of Staff, was the man selected to perfect the plans because he, like Washington, had seen in bitter experience how unprepared the Nation was to defend itself.

When Pershing was called to Washington in 1917 by Secretary Baker to take command of the American Expeditionary Forces to France, he set up his first headquarters in a two-room office in the War Department. He faced the task of organizing in France a military machine that would be ready to meet Germany's veteran soldiers before the Germans could crush allied resistance. The War Department was preparing to raise, equip, and ship to France millions of young Americans who were eager to go; but Pershing must train them and lead them to victory. He was also to face terrific pressure abroad to prevent these American millions from merely being fed into the French and British Armies to be led by French and British officers. He never wavered in the American purpose to strike for victory with an American Army. The record of the 1,400,000 American troops who actually reached the fighting front out of 2,000,000 sent to France shows how well he planned and led.

The first great blow delivered by the American Army in France, operating under American command and on plans made by American brains, was at St. Mihiel. It was startling in the completeness of the victory; and it taught even the war-hardened French veterans something new in war. The German lines were defended by endless barbed-wire barriers, perfected through four years of skillful German effort. They failed utterly to stop or even check appreciably the American drive. When the victory was won, detachments of French officers and men were sent to St. Mihiel to observe that barbed wire could be taken by crawling over it on boards and

landing on the astounded enemy. The Americans captured 15,000 prisoners.

"General Order No. 1, A.E.F." was issued in Pershing's two-room office. Two years later, with victory accomplished and the millions of young Americans restored to civil life, except for those who slept in soldier graves in France or at home, the last General Order also was issued by Pershing in Washington. It disbanded the A.E.F.

Great generals abroad retired after the war. Pershing stayed with the Army to shape it for the country so that it might never again go through such a turmoil of confusion as it knew in the first days of American participation in the World War. In his sixty-third year he was still hard at work on his great job. In one day he motored 450 miles to encourage and praise men of the National Guard and those in the civilian summer training camps. He sat his horse, unprotected in a drenching thunderstorm that day, taking the marchpast of a division, rather than seek shelter when the men in the ranks could not also be sheltered from the downpour.

So far as firearms for a war-size army are concerned, the United States is well prepared. Its reserve stocks of guns and other equipment, except airplanes, are adequate. Storehouses over the country contain this equipment. Since it is only for defensive purposes the Nation is being organized, however, the things which could be quickly obtained from ordinary commercial factories are not held in storage except to cover needs of the Regular Army. Goods of this nature aggregating billions of dollars in cost have been sold off as surplus since the war.

The current stocks for the regulars are held in major depots at strategic points. In time of distress and disaster, Army tents and clothing and food always come to the rescue of the suffering as men of the Army are turned out to help in relief work. It is part of the Army's job. In disasters the Army guards and aids and feeds the sufferers. The troops

always are available to fight forest fires. When the roof of the Knickerbocker motion-picture theater collapsed in Washington, burying hundreds of people under stone and steel and snow, troops were hurried to dig them out.

When the American Red Cross was in frantic need of clothing supplies to aid Japanese earthquake sufferers, Army stores in San Francisco met that need. The Army sold at cut prices, since it could not give them away by law, 300,000 pairs of socks and 200,000 suits of underwear. These were loaded on a Red Cross steamer and started for Japan almost before the earth stopped trembling there. In the same disaster came proof of the soundness of the great volunteer army framework that has been built up under the National Defense act. The reserve officers, assigned to one division of the Organized Reserve, subscribed $1,200 to Japanese relief. The check was handed the Japanese ambassador at Washington by the Secretary of War.

While the arms with which the first wave of an American War Army would fight within the next decade are in storage, the bulk of the Army which would be mobilized behind the first wave would begin to get better equipment as it could be produced. Ordnance experts of the Army are working constantly over new and improved types of guns and ammunition. The American military rifle of the war, the Springfield, was the best in the world and still is. It could shoot accurately more than 3 miles. Since the war a new type of "boat-tail" bullet has been devised which can be fired from the same gun with doubled accuracy for more than 5 miles.

The hardest job the officers had in France was to make the doughboys carry hand grenades in an attack long enough to be sure these bombs were available when a German machine gun in a shell hole held up the rush and could not be dislodged with bullets. The grenades were heavy. A company would start an attack carrying five to the man. A few miles of running and crawling through mud and under fire made them doubly heavy. The doughboys would dump them at

every chance if their officers were not looking. Since the war a new and lighter type of grenade has been evolved. The old grenades were so heavy that a strong man could lob them overhead only a distance of 25 or 30 feet. The new ones will go 40 to 50 feet, are safer to handle, and are more deadly to the enemy. The old rifle grenade could be fired about 150 yards from a Springfield. The new hand grenade can be fired more than 400 yards.

Army experts have been busy in airplane building since the war. The air squadrons are equipped largely with war-built De Havilands driven by Liberty motors. A large number of these were on hand when the war ended, but Army training and exercises are cutting down the reserve stocks rapidly. There is great deterioration in airplanes, even in peace-time service. But the airmen and scientific experts have developed many new and better types. American Army or Navy aviators now hold almost all world's records of the air in speed or altitude or endurance. They have reached a speed of almost 5 miles a minute and sailed to more than 5 miles above the earth. They can carry 4,000 pounds of bombs against the 250-pound limit during the war. The only fear they have is that lacking a commercial use of aircraft on a large scale to develop factories in the United States, they could not get the great numbers of machines they would need in war fast enough to meet an enemy air attack.

There was great advance during the war in Army signals. The use of radio telegraph and telephone became general. Nowadays, the Signal Corps maintains and operates between many of the Army posts in the United States networks of radio communication which save the Government large sums in commercial telegraph tolls. When great storms tear down the commercial wires, Army and Navy radio fill the breach in national communications until the damage is repaired. The Signal Corps also built and operates the 1,800-mile Alaska cable from Seattle. It has turned over an average of $200,000 a year to the Treasury in commercial tolls since the

cable was laid, aside from handling all Government business without cost. Recently it was decided to replace the cable with a better line. The old cable is rubber insulated and leaks its electric current if charged to operate at a faster rate than 20 words a minute. A British manufacturer has been given a contract for almost $2,000,000 worth of gutta-percha insulated cable to be laid by an Army cable ship. That type of cable is not manufactured in the United States. When President Harding was in Alaska during his last trip, the Army cable could not handle any business except that of the President and the newspaper men who accompanied him. Even the press matter was much delayed and commercial messages were not accepted for transmission at all. The new cable will quadruple the business that can be sent and received. It will be big enough for later extension to the Orient via the Alaskan islands.

The World War Army was raised under the Selective Service act because the heart of the Nation was so overwhelmingly devoted to the task of defeating Germany that such a law was possible. But the United States has no draft act on its statute books now. The National Defense act under which the three-in-one Army of the United States was created, consisting of Regulars, National Guard, and Organized Reserve, provides only for a volunteer system. If the Nation so desired, it would be possible to pass a draft act, revised to fit war experience with the draft, however, and fill the ranks by that means rather than with volunteers. If the emergency were great enough, in all probability that would be done as it was done in the World War.

There were lessons of the draft that could not be overlooked. It was found that every other man examined was not physically fit for front-line military duty. The Nation was shocked to learn of the poor physical condition of its young men. An almost equally appalling condition of illiteracy was discovered. Since the war, the War Department and the civilian organizations have been cooperating to remedy

both conditions. New physical standards have been worked out and adopted both by the Army and the amateur athletic organizations which include all colleges and schools. Mass athletics is being urged as a nation-wide movement. It contemplates that every boy in school shall take part in running, jumping, or other contests, instead of contenting himself with rooting for a team of picked youngsters. At West Point, still rated as the foremost military school, cadets are all required to participate in athletic games. The purpose is twofold. Not only will they be benefited physically, but they will be competent to lead the men they will command both in sports and in battle. Great good has already been accomplished through the civilian summer training camps, now a vital part of the new military policy. In 1923 an average gain in weight of 3 pounds per man was reported for more than 30,000 young chaps who took the six-weeks' course. Only lack of funds prevented triple that number from turning out. The Army had limited appropriations for the work, although swamped with applications all over the country.

There was talk of some similar form of summer training for girls, teaching them housewifely arts instead of bayonet drill, but giving great attention to their improvement physically. Two young girls in Iowa wrote President Harding just before his death asking that girls' camps be started under Army instructors. The War Department took the question under advisement as General Pershing thought it might have possibilities. The General told one summer training camp command that he hoped the day would come when American girls would not accept the attentions of any young man who had not volunteered for a course in military training to fit him for war duty should he ever be needed.

In one experimental training company of 120 men, selected for physical defects which barred them from the camps, an average gain of 12 pounds per man in weight was recorded at the end of six weeks. This special company carried off third

honors in drill competition with the four best drilled companies of the regular camp. A movement to organize training companies for defective boys at all summer camps resulted.

The War Department is willing to give its aid in educational matters. In the Army there is no lack of educational opportunity. It has also initiated efforts to make the Regular Army, the National Guard, and the Officers' Reserve Corps centers for the teaching of good citizenship. Secretary Weeks told a graduating class at the War College that the day was over when regular officers were professional soldiers, set apart from civil affairs. He urged them to take active interest in civilian affairs wherever they might be assigned. Grand Army veterans and American Legion leaders, in offering their services to help along the summer work, also expressed the view that the Army training camps were as important for the country in peace as they were for war because they taught sound principles of right living and the duties of citizenship. The veterans urged that the camps be enlarged. They offered to help recruit youngsters by the tens of thousands.

Men in the ranks of the Regulars who desire to work can get commissions or be appointed to West Point. The whole Army has become a school for officers and men alike. School work is compulsory with officers. They alternate years of field work with troops and years of study in the various schools until they finally graduate from the War College, usually as grayheaded men. The War College is the university of the system where selected officers are taught the science of high command. They are made ready to be Army commanders or hold other posts of heavy responsibility in war.

The three-in-one Army plan was outlined in the National Defense act, but it required time to make it effective. Now it is estimated that a force of 2,000,000 men could be assembled as volunteers in a very short time, grouped about the

reserve officers in localities all over the country. That would be the force known as the Organized Reserve. Provision has been made for 27 divisions in this force which would be the real fighting Army in any great war. From the roll of more than 70,000 reserve officers, assignments have been made to each of these divisions. Each division, also, has been allotted to a particular geographical area. So far as possible the numerical designat on of each division corresponds to that of the division in which most of the troops from that section were placed in the World War. The purpose is to preserve the spirit and traditions of those war divisions in permanent form.

The divisions are allotted three to each corps area and the nine corps area commanders, who are major generals of the Regular Army, take the place of the old departmental commander system. All matters pertaining to troops within a corps area, whether they are Regulars, National Guardsmen, or Organized Reserves, are handled through the corps area commanders. That is the way the War Department has worked out the lesson of decentralization it learned in the great war. Outside of its work in garrisoning the overseas possessions like Panama and the Philippines and Hawaii, the Regular Army now devotes itself almost wholly to training the National Guard and the summer training camp work for civilians and reserve officers. Even the crack cavalry and artillery at Fort Myer, the post nearest to Washington, were turned out for rough-and-tumble camp life this year and did its share in the training. In the overseas garrisons, which are manned and supplied on the theory that they might have to maintain themselves for a year unaided before assistance reached them from home, summer training work is carried on among volunteer native groups. Through such camp work and later enlistment in the Philippine scouts, the savage tribesmen of the islands have been brought closer to civilization than ever before. They make loyal soldiers and when they go back to their villages, they become leaders among

their people in promoting orderly and progressive ways of life.

Under the corps area system, a division of Regulars is supposed to be located in each area, besides two divisions of National Guard and the three Organized Reserve divisions. Only one division is now held intact in the Regular Army, however, the famous Second which, with its Marine Brigade fought the battle of Belleau Wood and turned back the last great German thrust at Paris. The Second Division is stationed in Texas. It serves the double purpose of backing up the cavalry, scattered along the Mexican border, and of affording a practical school of command for divisional officers. Selected regular officers are assigned to this division for the experience they will gain in handling divisions of troops instead of battalions or companies. That, with the Army officer school system, is calculated to insure that the country will always have ready capable and experienced officers to command divisions in war. There were no officers in the Regular Army in 1917 who had had such experience.

Two other regular divisions, the First and the Third, are organized but not assembled. The units are scattered through the permanent Army posts over the country at peace strength. Only the overseas regiments are kept at war strength. The full authorized strength of the Army is 125,000 men, but it is far short of that number. Merged into the regiments that form the three divisions are the officers and selected noncommissioned personnel, who, in the event of war, would be withdrawn and form the nucleus around which new regiments and the additional six divisions of the Regular Army could be built quickly. Even the records of the inactive divisions and regiments are kept intact and their equipment stored. It is believed that the expansion to war footing could be accomplished quickly.

The regular divisions would be recruited and taken to the front in any small fighting emergency such as a border scare. If the nine divisions were insufficient, the 18 National

Guard Divisions would be called out. Each of these, so far as possible, retains the war-time designation of the old National Guard Divisions. In some cases a complete division will come from one State and be commanded from the first by its own officers. In others, troops from several States are combined into divisions and regular officers would command. The Regular Army supplies instructor officers and noncommissioned officers and all equipment needed for armory work or summer encampments. It would require only a few weeks of hard training at a divisional camp to fit these forces to go out in support of the Regulars. They already have a considerable part of their men and equipment and could be brought quickly to war strength.

The 27 Organized Reserve Divisions are composed only of reserve officer personnel in peace times. These officers, serving voluntarily, have all been assigned to units allotted to their home towns where possible. None of them is at any great distance from the place where he would be called in a mobilization. This is how the plan would work out: The Seventy-ninth Division, for instance, is located wholly in Pennsylvania, since most of the troops of the war-time Seventy-ninth, which did good work in France, came from Pennsylvania. Headquarters is in Philadelphia and in that city reside most of the reserve officers who would form the divisional staff. Each brigade headquarters is located in another Pennsylvania city where its officers reside. Each regimental center is in another well-populated community, and so on with each battalion. The company centers are in towns and villages or in particular districts in the cities. The company officers live in those villages or districts. In some cases a platoon of a company is assigned to a small town where the lieutenant who would command it lives, and other platoons and their commanders to come from nearby towns. In the event of an order mobilizing the Organized Reserve, each company officer would select a building for headquarters in the town from which his unit was to come.

If the Army was to be raised by the volunteer system, they would commence to enroll volunteers to fill that unit, thus keeping boys from the home town together. If the draft system were followed, the local board would send the men selected in that town to the unit headquarters to report for duty.

Training would begin at once under the captains and lieutenants. The men would live at their own homes at first, turning out each day for platoon or company drill and instruction. Meanwhile the battalion, regimental, brigade, and divisional staffs would be assembled and busy getting the clothing and arms for the companies and sending them out to the villages where the men were drilling. A complete system of distribution would be set up quickly, and the equipment go out as fast as the Government could supply it. When the four companies of a battalion were all enrolled and organized, the battalion would be assembled at some central point where a building could be found to house it. Battalion training could then be added to company work. In a short time, the brigades similarly could be brought together, each in a more populous center where it could find temporary quarters. And when the divisional cantonment has been completed, probably two or three months after the first mobilization, the divisions could march in and begin the final business of getting ready for battle.

As Secretary Weeks, who has worked shoulder to shoulder with General Pershing in the job of planning, drawing help from his own military education at the Naval Academy, foresees the result of all these postwar labors, three months will have been cut from the time it took in 1917 to get the National Army divisions ready to sail for France. But more than that, perhaps, it is estimated that the new plan will obviate the wild confusion of those early days of the war when 32 great military cities were all to be built at the same time and millions of men rushed to them in a confused mass of humanity.

The Officers' Reserve Corps is largely composed to-day of men with practical war experience. It is a veteran force. But each year sees age and changed conditions of life reducing the number of men available. To fill the gaps, the Reserve Officers' Training Corps, composed of college and university units, and the Civilian Military Training Camp plan have been worked out. From this source it is hoped ultimately to get 5,000 youngsters into the Officers' Reserve Corps each year as second lieutenants. Summer camp training and the Army correspondence courses, which 10,000 reserve officers are now taking, afford the means for advancement in military knowledge and in rank as the youngsters advance in years.

Specially selected reserve officers are now enrolled for the staff and technical corps. Even the Military Police, the "M. P.'s" of France, have a reserve organization. A famous detective holds a commission as reserve colonel of M. P.'s. The Engineer Corps, which would run railroads in the zone of operation as it did in France, is organizing reserve railroad regiments. They are composed wholly of railroad employees; division superintendents, master mechanics, dispatchers, and other officials are the officers. Their men would come from the engine and train crews, shops, yards, and stations of the same railroad. The suggestion was made by a reserve officer who is a high official of a big railway system. It means that the railway regiments could be taken out without affecting seriously the operation of any railway system at home, yet each railway regiment would be competent to run a railway division itself. Its officers and men are already accustomed to working together. The regiments are known by the names of the systems from which they come—the Baltimore and Ohio, the Pennsylvania, the New York Central, the Santa Fe, or the Southern Pacific.

The war proved that armies alone could not win wars, just as industry alone could not do so. Modern warfare is a struggle between peoples using all their resources. Congress

therefore provided that plans for industrial mobilization should be made to parallel the man-power mobilization scheme. The Assistant Secretary of War was placed in charge of that work. Surveys of all national resources have been made and will be kept up to date. The probable needs of an army of any size up to the full strength of America have been worked out in considerable detail. Ordnance and aircraft districts have been created in the industrial world, headed by reserve officers who are themselves big men in American industry. The Army requirement tables are being studied, and the experience of every man who held an important post in the World War mobilization is being drawn upon to prevent repetition of the mistakes of that time.

It has been estimated that more than 700,000 different articles, from carpet tacks and pins to locomotives and 16-inch guns, are needed for any modern army. There are more than 33,000 separate finished manufactured products to be procured. Of all the things needed, not more than one-half are manufactured in peace times. Plants to make the others must be converted or built during war, and labor and power and raw materials for them must be found without impeding the flow of industrial life in the Nation. That is what the industrial mobilization plans are calculated to provide for.

In memory of its dead of the World War the Nation has set a shrine among the peaceful hills of the Arlington National Cemetery. On the wide terrace of the Memorial Amphitheater, whose stately beauty bespeaks a people's tribute to all who have died for the flag, a massive square of stone covers the casket of the Unknown Soldier. And on that altar of freedom month by month, year by year, the American people, the great and the lowly, the rich and the poor, lay their tributes of flowers and highest honors to testify that the valor of America's dead shall never be forgotten.

VI

THE DEPARTMENT OF JUSTICE

By reason of its sensational activity during the war in hunting German spies, and since in the detection and prosecution of anarchists, revolutionists, and profiteers, the Department of Justice has recently risen to great prominence in the public eye. This most dignified and mysterious of all the Government departments has also achieved in recent years a great actual increase in power and in scope of duty. In fact, nearly all of its growth has occurred during the last 25 years, and this growth was fittingly signalized when the department, with its scores of lawyers, its thousands of volumes of case reports, its remarkable collection of official portraits, and its untranslatable Latin motto, moved into a building all its own.

The new building was badly needed. About a quarter of a century ago Congress appropriated some money to build a home for the Department of Justice, but Attorney General Griggs delayed the building operations because of high prices, and the department moved into an ancient residence on K Street, where it stayed for more than two decades. This place was large enough at the time of the removal. One of the special assistants to the Attorney General, who has been in the department more than 25 years, says that when he first entered it there was only one telephone. One of his duties was to answer this telephone, and he says that he seldom got more than six or eight calls a day. The Hon. Richard Olney was Attorney General at that time. It is a tradition that he was a great tennis player, and that he seldom failed to reach

the courts early in the afternoon. His successors of the present day find little time for recreation or sports.

But Olney was a great lawyer as well as a good tennis player. Although his office did not handle a tithe of the business which passes through the modern Department of Justice, it did handle some very important cases, and Olney himself appeared much oftener before the Supreme Court of the United States than do attorneys general nowadays. For example, he personally argued the old income-tax case with Joseph Choate as counsel in opposition. Olney's salary at that time was $8,000 a year, and it is said that Choate received $100,000 for arguing that one case.

This illustrates a condition which still persists, namely, that the lawyers employed by Uncle Sam do not make nearly so much money as they might make in private practice. The Attorney General gets only $12,000, the Assistant Attorneys General $7,500, and the rest of the department lawyers from $2,000 to $5,000. In spite of these low rewards the department has always been able to command a high grade of legal ability because of the prestige which service there confers upon a lawyer. Retiring attorneys general, with the exception of a few who have gone to the Supreme Court bench, have always been extremely successful in private practice, while even an assistant attorney general gains prestige and opportunity through his Government connection.

The Government has never paid its lawyers much. Randolph, the first Attorney General, receiving $1,500 a year, placed on record an emphatic protest in which he said that he was not making a decent living, and described himself as "a sort of mongrel between the States and the United States."

The Attorney General had no department until 1870, and this branch of the Government did not experience any large growth until after the War with Spain. It was then that the Government began the actual enforcement of antitrust Federal railroad laws, and other legislation which required a

large and active legal force. Indeed, the process of centralization which this Government has undergone is well illustrated in the growth of the Department of Justice from a small office employing perhaps a dozen people, to one employing many hundreds.

The greatest growth, of course, came during the war, when the Bureau of Investigation grew larger in numbers than all the rest of the department put together. With the signing of the Armistice, this part of the work began to shrink rapidly, but it was revived when the reds became active. The prosecution of the I. W. W., which was conducted by Assistant Attorney General Frank K. Nebeker, was one of the greatest cases ever won by the department. Between 40 and 50 headquarters of the radicals were raided. In one Chicago case there were 120 defendants, 99 of whom were convicted. This prosecution is generally given credit for having broken the back of this revolutionist organization in this country.

The office of Attorney General was created in 1789 to provide a legal adviser for the President. In the early history of the country the principal duty of that official was to guide the Chief Magistrate along legal lines and to represent the United States in the Supreme Court. Since that time his duties have expanded until to-day he is charged with the duties of prosecuting attorney for the Government as well as being its legal adviser. He is charged with seeing that those who violate the criminal statutes are brought to justice, and with caring for them after they have been sentenced, as he has the direction of the Federal prisons.

When the office was first created it carried with it a salary of only $1,500 a year, and the Attorney General was supposed to pay his secretary out of that. He was not required to reside in Washington and was permitted to continue his law practice while serving as Attorney General. In 1814 the duties of the office were increased, but it was not until 1870 that the office was transformed into a full-fledged de-

partment of the Government. Prior to that time the Attorney General held the unique position of being a member of the Cabinet and yet not the head of a department.

Not all the lawyers in the employ of the Government are under the Department of Justice. Most of the other executive departments have found it necessary in the administration of routine duties to have legal forces of their own. This is notably true of the Treasury, Interior, Army, and Navy. The collection of revenues, internal and customs, and numerous fiscal questions arising in the Treasury Department present legal problems requiring the attention of Government lawyers. In the Interior Department, with its Land Office having jurisdiction over the public domain, and its Indian Office guarding the welfare of the wards of the Nation, a force of lawyers must be maintained. In the Patent Office, lawyers skilled in that branch of the practice must handle the questions involved in the issuance of patents. The legal forces of the War and Navy Departments are engrafted into those two branches of the military service, receiving commissions and being assigned to their respective judge advocates general.

A large part of the law work of the Government, all of that relating to the discharge of the administration duties of the several executive departments, as well as of the independent establishments, is conducted without calling upon the Attorney General for assistance. A clear idea of the legal work of the Department of Justice can be conveyed by broadly defining its duties as those of counsel for the Government before all the courts in all matters, including the enforcement of the laws. To discharge these duties the Attorney General has not only a well-equipped and carefully organized department at Washington, but he has scattered throughout the country United States attorneys, with a small army of assistants, who see that the Federal courts are kept busy trying cases involving all phases of violation of the criminal and civil statutes. United States marshals, who

may be designated the police officers of the Federal courts, to serve all legal processes, also operate under the direction of the Attorney General, one with a staff of deputies being assigned to each judicial district.

While all executive departments have law officers, their opinions have no legal binding force upon the department heads in the shaping of the policies of the Government. The law contemplates that the Attorney General alone can deliver opinions upon which the administrative branch of the Government can formulate its policy. He has the final voice as to the intent and scope of the law, and by statute Cabinet officers are authorized to base their action upon his advice. when questions of law are at issue. But they do not always do so. Rather than follow his opinion when it differs from their own, Cabinet officials have been known to suspend action altogether in the hope that the Attorney General could be brought to a revision of his opinion. Of course the President can at all times call upon the Attorney General for his opinion. But the President, as well as the Secretaries of the different departments, can only submit to the Attorney General for his opinion questions relating directly to the administration of departmental duties.

There has long prevailed an impression which seems to have existed in all sections of the country that the Attorney General as the law officer of the Government is available as counsel for individual citizens in their personal legal troubles. Almost daily for years the Attorney General's mail has contained communications from perplexed persons, seeking his advice. So numerous have these requests been that the department uses a form letter to advise the correspondents to consult a local counsel, explaining that the Attorney General is prohibited by law from giving an opinion to any one except the President and members of the Cabinet, and then only upon matters relating directly to administrative affairs. The department is always anxious to receive information concerning alleged violations of Federal statutes, and

will, if requested, respect as confidential the source of its information, but it can not undertake to conduct the lawsuits of individuals, nor to advise them as counsel. The misconception of the Attorney General's duties as law officer of the Government is not confined to individuals. Congress itself, although it defined by law his duties, has sought to obtain his opinion in the solution of knotty legal problems. But to Congress as to all others except the President and Cabinet officers he had to return the stereotyped reply that he was prohibited by law from complying.

The work of the Department of Justice is systematically classified according to subject and distributed by the Attorney General among his assistants. The duties performed by the Attorney General are largely administrative, but when occasion requires he appears in court personally to conduct the Government's cases. The Solicitor General is his principal assistant, and acts as Attorney General in his absence. He is the representative of the Government in all cases before the Supreme Court, being assisted in the argument of some of them by the attorneys who had direct charge of them. The assistant to the Attorney General, a title which distinguishes the official from Assistant Attorneys General, has supervision of antitrust cases. Since the World War his work has been enlarged by assigning to him questions arising under the trading with the enemy act. There are seven Assistant Attorneys General, among whom the remainder of the business of the department is divided.

When work arises in the department which can not be promptly handled by its regular organization the Attorney General may engage attorneys who are given the designation of special assistants to the Attorney General. These special assistants are employed to handle specific cases, a fact stated in their appointment. When the cases are terminated their services are dispensed with unless a new appointment is given them and other cases are assigned them. The volume of Federal litigation was greatly increased by conditions

resulting from the World War. To aid the United States attorneys in conducting it the Attorney General has available an appropriation to employ attorneys to act as special assistants to the district attorneys. In this way Congress has sought to give the Department of Justice sufficient elasticity in the matter of legal force to meet the varying conditions which constantly arise in the enforcement of the laws.

The Bureau of Investigation furnishes the eyes of the Department of Justice in the detection of crime. At its head is Director William J. Burns, who is constantly in touch with the bureau's numerous offices throughout the country. The employees of the bureau in the field are designated special agents to distinguish them from the employees of the Secret Service Bureau of the Treasury, whose business it is to suppress counterfeiting of Federal money or securities.

This bureau is engaged in building up a specialized library on crime that promises to be the greatest collection of data on the subject of crime and criminals ever assembled. Every book, pamphlet, paper, and memorandum that has been written on the subject of crime will find its place in this queer library. In addition to being a repository of information valuable to the student of criminology, the library will have an elaborate file of statistics relating to crime and criminals. The history, the criminal record, the photograph, and the fingerprint of every known criminal will be on file in this bureau.

The library will pay particular attention to fingerprint records. More and more the criminologists of the world are coming to depend on this system of identification of criminals. The success which has been met by employment of the distinctive markings of men's fingers and thumbs has been astonishing. In the case of the $200,000 theft of Federal reserve notes from the Denver Mint there was a mystery that baffled the police for weeks. Finally the dead body of one of the robbers was found in an abandoned garage. Every means of identification had been removed from his

clothing. There was not a scrap of paper, not a tailor's tag, not a laundry mark anywhere about the body. However, the Federal officials took fingerprints and the man was at once identified as a notorious Chicago criminal, wanted on several charges. By establishing the identification of this member of the gang of Denver Mint robbers, it was possible to track down and arrest the confederates.

Another interesting case was that of a man arrested for robbery in Illinois. The suspect was positively identified by eye-witnesses as guilty of the crime. The circumstantial evidence was very black against him. But the robber had left a telltale fingerprint and that of the man who was declared by the victims to be the robber did not correspond with it at all. The search continued while the suspect was held and, subsequently, the real robber was apprehended.

Not only is the Department of Justice responsible for placing violators of the Federal laws in prison, but the Attorney General has it largely within his discretion to determine whether the offenders shall serve out the sentences imposed on them. The power to pardon Federal prisoners is vested in the President, but he has all cases he is to pass upon reported to him by the Attorney General.

There are three Federal penitentiaries, located at Atlanta, Ga.; Leavenworth, Kans.; and McNeil Island, Wash. These institutions are under a superintendent who together with the warden and another official at each penitentiary, generally the prison physician, constitute a parole board for that penitentiary to determine whether eligible prisoners shall be recommended to the Attorney General for parole. This form of clemency, introduced by act of Congress in 1910, aims at reformation. It has been found particularly effective among first offenders, although it is not confined to that class. Attorney General Daugherty has interested himself particularly in the matter of parole for deserving prisoners.

It costs approximately $18,000,000 a year to maintain the judicial branch of the United States Government. Of this

$3,000,000 is expended for the maintenance of the Department of Justice in Washington, a like amount for the maintenance of prisoners who violate the laws of the Federal Government, and $12,000,000 for the operations of the United States courts. An average of about 6,000 prisoners is maintained at the expense of the Federal Government all the time, exclusive of those kept in county jails pending trial and under sentence for minor offenses. About 5,000 are sentenced to prison each year, and a like number are discharged in that time. Of these, approximately 2,500 are discharged by the expiration of their sentences. Approximately 1,300 applications for pardon come up each year. The President considers about one-half of these cases. He unconditionally pardons a few and commutes the sentences of over 200. It costs the United States Government about $280 a year to maintain each of its prisoners. The Department of Justice operates a criminal identification bureau and has upward of 91,000 Bertillon records and 490,000 fingerprint records of criminals, great and petty, in the United States. In a single year it was able to identify over 22,000 criminals by these records. In connection with the Federal prisoners in Alaska an interesting question has long been pending. It is the custom there that when a person without means is found badly wounded or with frozen limbs to charge him with vagrancy in order that he may, as a United States prisoner, receive the necessary medical and surgical attention at the expense of the Government, the appropriation for support of prisoners being charged with the expense. The Department of Justice feels that the Federal Government ought not to be burdened with the care of these people, hospital bills frequently running as high as $1,000 per person. The Alaska judges declare that these victims are vagrants and that it would be inhuman not to give them necessary treatment.

An impressive feature of the Department of Justice is its collection of portraits. From the very first it has been customary for the Attorney General to have his portrait

painted at Government expense before retiring from office, and to leave it hanging on the office wall. Thus, when you enter the Attorney General's office you face the solemn and impressive gaze of all the departed Attorneys General.

Some of these official likenesses are very good, and some are not, for the American Government supports no court artist, but has its great men painted on contract. In some cases evidently the best bid has won out rather than the best artist, but all of the portraits are very impressive, and that is the only thing necessary, since posterity never sees the original anyhow. Robert Smith, who was Attorney General under Jefferson and Secretary of State under Madison, was long represented in the State Department by a very impressive oil portrait. After several generations had elapsed, some of his descendants came forward and proved that this was not a picture of Robert Smith at all, but of his wife's grandfather, an old gentleman of stately appearance, but of no special distinction. A less impressive but perfectly authentic likeness of Smith was substituted.

The Department of Justice has on its seal a motto, which has never attracted any public attention, but has afforded much amusement to all lawyers who are Latin scholars. This motto is peculiarly appropriate to a legal department in that it can be made to mean almost anything. The Latin words are "Qui pro Domina Justitia Sequitur." Everyone agrees that it is poor Latin, and probably lacks a definite meaning. It is said to have come down from the days of Queen Elizabeth. Attorney General Johnson, in Taylor's administration, wished it on the department and died without having explained his action.

VII

THE POST OFFICE DEPARTMENT

THE Post Office is the one agency of the Government with which every citizen comes in constant and personal contact and the regular functioning of which is his daily concern. From more than a hundred million people comes an insistent demand that their personal correspondence be safely and speedily collected and delivered. By hundreds of thousands of business concerns the same demand is reiterated for the prompt handling of from half a dozen letters to several truck loads of all classes of mail.

The Post Office Department has an organization of 330,000 postal employees and coworkers, or one worker for every 350 persons in the country. During every hour of each day over a million and a half letters are mailed, which means about 36,000,000 between one sunrise and the next, in addition to parcels and other classes of mail. About $500,000,000 is paid out annually to employees, railroad companies, and others, including the purchase of necessary supplies and equipment. In all of its services and activities the Post Office Department handles over $3,000,000,000 yearly.

The growth of the Postal Service illustrates strikingly the development of the country and the amazing strides it has made in education, wealth, and industry. The story abounds in stirring adventure from the days when desperate highwaymen attacked the Pony Express and the mail-carrying stagecoach to these modern times when fleet airplanes cross the continent in a few hours. Illustrious names are inscribed on the roll of postal workers. Benjamin Franklin was the

first to assume the office of Postmaster General, and later Abraham Lincoln held the humble position of postmaster in the thriving little prairie village of New Salem, Ill. Franklin not only served the United States as its first Postmaster General, but was also employed in a like capacity by his Britannic Majesty long before the signing of the Declaration of Independence.

In 1800 the receipts of the Postal Service were only $280,804, while the expenditures were a bare $213,994. To-day the receipts are approximately $500,000,000 with expenditures somewhat in excess of that amount. What these figures really mean to the country as a whole may perhaps be better realized by comparing the New York and other city post offices of to-day with those of a century ago. The present sixty million dollar a year business in Manhattan and vicinity is conducted in quarters covering some 2,000,000 square feet of floor space with hundreds of subsidiary stations, garages, and piers. During the year 1922 the office handled 1,800,000,000 ordinary and 11,500,000 registered letters, 900,000,000 circulars, 14,500,000 insured parcels, 54,000,000 parcel-post packages, all mailed in New York. In addition it delivered in and about the city 1,500,000,000 letters, dispatched over a hundred thousand tons of periodicals and placed on steamers for carriage to foreign countries approximately 252,000,000 pieces of mail. Only 100 years ago, the entire postal business of the same district was conducted in a room 12 feet deep and 15 feet wide.

New York is the largest post office in the world, but amazing as its development has been, it must yield the palm for rapid growth to the city of Los Angeles. Thirty-eight years ago the postal receipts of this post office were $60,000. By the year 1910 they had increased to $1,031,819, and in 1922 they attained the tremendous total of $5,850,348.

What is probably the world's record for mushroom growth is held by a fourth-class Arkansas post office. In the three months of the fall of 1922 the business increased more than

1,000 per cent and the postmaster sent a wire to Washington: "Office out of my control; letters arriving 5,000 to 7,000 daily; parcel post by the tons; can't open mail any longer; no place to put it; accept resignation." The department refused to accept his resignation, increasing his salary from $600 to $2,500 a year, but he was obdurate and would not continue. The tremendous increase was due to the discovery of oil in the neighborhood. Almost overnight the population grew from 200 to 10,000, and soon it required 13 employees to work the mail which was formerly handled by the postmaster alone. In one month the money orders sent from this office totaled more than $50,000 and $10,000 to $20,000 worth of registered mail was received daily. Before the boom the entire business of the office for three months only amounted to $150.

During Lincoln's term as President the money-order system was first established in the United States. In 1865 over 74,000 domestic money orders were issued having a total value of nearly a million and a half dollars. Now approximately 190,000,000 domestic and 14,000,000 foreign orders with a total value of $1,250,000,000 are handled by the Postal Service annually. In order to provide facilities for the international exchange of money it is necessary for the Post Office Department to enter into agreements with foreign countries. With the larger nations such agreements have long existed and with Germany and Austria they have lately been resumed. In addition to these the department is this year negotiating 16 different money-order conventions with smaller countries. New York leads in the amount of money orders issued during one year, with more than $135,000,000. Pennsylvania is second with over $97,000,000, while Illinois is third with $73,000,000. Illinois, however, was first in the amount of domestic money orders cashed, the figure being $218,820,474.

The year 1836 saw the beginning of the transition from the stagecoach to the railroad car as a means of transporting

the mails. In those days it was difficult to induce the railroads to operate their trains at night for the purpose of making connections with other lines and thus obtaining a speedier dispatch of the mails. Then there were only about 200 miles of railroad in the country carrying the mails; now the mails are being transported over no less than 231,981 miles of railroad trackage.

The Railway Mail Service, with its 20,000 employees, constitutes the backbone of the American Postal System. The transportation of the mails on the railways costs $80,000,000 a year, and the pay of the clerks $40,000,000 more. Each clerk must be familiar with from 5,000 to 20,000 post offices, and is required to be able to tell instantly on what railroad each post office is located, through what junction points a letter dispatched by him to that office may pass, and a multitude of other details which can be mastered only by very retentive minds. The accuracy to which they attain is illustrated by the experience of one clerk who made a record by handling 17,000 cards addressed to as many post offices at the rate of 60 a minute without putting a single card in the wrong pigeonhole in the mailing case.

Akin to the Railway Postal Service and under the direction of the same official of the Post Office Department, the Sea Post Service handles the Nation's mail on its transoceanic voyages to foreign countries on the world's greatest ships. Chief among those now in the service is the U. S. S. *Leviathan*, the pride of the American merchant marine. In this giant of the seas two rooms are devoted to the storage and handling of mail which is all sorted and made ready for dispatch immediately the vessel enters the harbor and long before she reaches her pier. This work of the sea-post clerks advances the delivery of mail from 24 to 48 hours. In the harbors mail boats tie up alongside the great liners and the mail is literally poured into them through canvas chutes.

One of the unique features of the postal establishment is the Detroit River Service, upon which devolves the

onerous and ofttimes hazardous task of delivering mail to all incoming steamers as they enter the port from the Great Lakes. This work is carried on by a small tugboat and several skiffs in which the mail is dispatched to passing vessels. Courage as well as skill is required of the men who handle these skiffs, for the method employed subjects them to constant peril. The river letter carrier rows his frail craft directly in the path of the oncoming steamer and as it bears down on him heaves a line to the deck. In an instant the rope is made fast and his boat is being yanked through the water in a mist of spray as it thumps against the steel side of a monster freighter. A bucket is passed down at the end of a line, filled with mail, hauled up again, and then he is cast adrift to fight his way back to the mother tug, often through a strong head wind or a vicious current. The service begins its operation in early April each year and continues until late December when ice jams close the port to navigation. More than 20,000 ships are hailed in a season and some 25,000 sailors depend on these river letter carriers for their mail.

The Rural Free Delivery Service was first established in 1896, three routes being operated in West Virginia. Within the succeeding nine months the Post Office Department began to deliver mail over 82 additional routes, leading out of 43 post offices in 29 different States. Prior to that time farmers and their families were almost completely isolated from each other and from the more populous communities. They received no mail except when they made periodical trips to the nearest post office, and had little or no communication with the outside world. To-day, not only is the farmer's mail delivered daily, but the Postal Service cooperates with him in the carrying on of his business.

No obstacle is too great to be overcome by the Post Office Department in its determination that every family in the United States shall receive its mail as regularly and as promptly as possible. The Uintah Valley, Utah, has a

population of 5,000 people living in 30 different communities—not one mile of railroad track in the whole area. The valley is surrounded by high peaks and bluffs which have so far discouraged private capital from attempting to establish any regular means of communication. It therefore remained for the United States Postal Service to put in operation the greatest star mail route ever known. This route extends 125 miles and crosses a mountain pass 9,000 feet high. The mail is carried in 26 huge trucks which transport an average of 10 tons of mail every day. Upon some trips as much as 20 tons have been carried. In winter the heavy snowfalls block the pass and cut off communication, rendering the use of wheeled vehicles well-nigh impracticable. To keep the route in operation the department resorted to the use of two huge caterpillar tractors which plow their way through the snowdrifts with amazing ease and thus keep the mails moving in and out of the Uintah Valley. In Alaska, far up in the Arctic regions, there is another picturesque rural-delivery route covering 300 miles along the coast from Point Barrow to Kotzbue. The carrier is an Eskimo who is said to run every mile of the way with his dog sleds. It requires two months to cover the 600 miles journey to the end of the route and return. At the present time there are 44,454 rural mail routes in the United States, with a total mileage of 1,191,264, providing free delivery of mail to nearly 6,500,000 families or approximately 30,000,000 individuals.

The Air Mail Service commenced operations in 1918 with planes flying between Washington and New York, and under the administrative leadership of Postmaster General Harry S. New, great progress is being made in its development. In the first five years of its existence it traveled 5,281,823 miles in the air, 4,623,115 of those miles with mail. The letters carried numbered 160,473,600, while through fog, rain, hail, or snow 8,373 trips were made, in addition to 14,704 fair weather flights. The average schedule of performance was over 90 per cent, and the cost of the service

was $4,295,968. The pilots of mail planes face problems that are in many ways more difficult than those which confronted the heroic pilots of battle planes in the World War, and the National Aeronautic Association awarded to the Air Mail Service the famous and highly prized Collier trophy for having performed the greatest achievement in the development of aeronautics during the year 1922. During 1923 the service set a new world's record by flying 2,680 miles from San Francisco to New York in 26 hours and 14 minutes.

The Postal Service not only makes use of the heavens above for the dispatch of mail, but also speeds it in subterranean carriers through the very bowels of the earth. This work is carried on by what is known as the pneumatic-tube system. New York is the only office where the tubes are in use. The system is approximately 27 miles long, the tubes connecting the main office with the terminals, the principal stations, and the main office in Brooklyn. The tubes are 8½ inches in diameter, are laid under the streets at varying depths, and through them steel containers or carriers, in which the mail is packed, are forced by air under a pressure of from 4 to 8 pounds per square inch. These containers are about 24½ inches long, and each has a door in one end through which the letters are inserted in bundles, the doors being thereafter closed by a contrivance which no amount of jarring can unfasten. Approximately 600 letters constitute a load for each carrier. A timing device on the underground tube permits the containers to be dispatched at intervals of about 10 seconds. The speed of transit is about 30 miles per hour, yet so skillfully are the pressures controlled that when the cylinders are shot out of the tubes into an apron device at their destination, they arrive without damage of any kind. Movement of the mail is continuous over a period of about 20 hours daily.

To provide means of identification so as to protect the buyers of large quantities of stamps, it is arranged that the stamps may be perforated with numbers or letters not over

half an inch square. This has resulted in a large decline in the petty pilfering of postage stamps. Another order which has resulted in a great saving of time and expense to the Postal Service, and also to the big users of the mails, is the privilege of sending unstamped third and fourth class matter through the mails. To a firm which sends out a million circulars the work of stamping them is very tedious, and the actual cost of the stamps to the Government is not insignificant. So it is provided that where a business house sends out 2,000 or more identical pieces of mail, it may be granted the privilege of printing on the wrappers or envelopes a statement showing the amount of postage paid, the office at which paid, and the number of the permit under which this form of postage paying was substituted for stamps. Still another convenience is the privilege of precanceling stamps. A big firm, for instance, mails 50,000 calendars. Each of these is in a roll. If the firm placed a stamp on each one of these calendars and took it to the post office in the ordinary way, the office would be swamped, since no other method than the old hand stamp has been found for canceling the stamps on package mail. By permitting the precancellation of stamps both the patron and the post office are saved a vast deal of trouble and expense.

However during the past few years an even greater advance has been made in the method of collecting the postage on individual pieces of mail matter. In increasing numbers the large business houses, trust companes, mail-order concerns, and department stores are discarding the stamp or the stamped envelope in favor of rapidly running machines, which, at one operation, seal, impress a permit number approved by the postal authorities, cancel, and count the letters or circulars that are fed into them. The use of the meter or permit machines was approved by the department in 1920, and their use by large firms is now becoming extensive. These devices are capable of handling from 6,000 to 20,000 pieces of mail per hour.

It costs the United States $3,000,000 a year to provide and keep in repair the 10,000,000 mail bags that are required to transport the mails. Prior to 1917 the department purchased all of this equipment from private contractors, but the advent of high prices during the World War induced the Government to go into the manufacturing business for itself. The mail equipment shops now employ 378 workers who turn out about two and a half million new sacks annually, and repair as many more, using in the process 2,130 miles of canvas. The shops are also saving the Government many thousands of dollars by manufacturing all of the new locks required on sacks and pouches, producing over 300,000 ordinary and 35,000 rotary locks during a twelvemonth. More than a million and a half locks are used in the ordinary transportation of the mails, each of them opening to every key in the postal establishment used in connection with the ordinary mail pouch. To protect them the greatest possible care must be observed to prevent a single key from going astray. Rotary registry locks are used on pouches which contain registered mail only, the mail being checked in the pouches by two clerks who keep a duplicate record of the number of pieces. The locks are opened by a special key, and have a registering equipment like the mileage recorder on an automobile, which moves up one number every time the lock is opened. When the numbers on the lock correspond with those in the record, it shows that the lock and pouch have come through unopened.

The Post Office Department is provided with a fund for the payment of awards to employees who invent new devices for use in the service. An employee was recently awarded $100 for an automatic guard to be used on the punch presses which insert the metal eyelets in mail bags. Before the guard was installed as many as 20 operators had lost portions of their fingers in these presses during a single year.

In addition to the four Assistant Postmasters General, who are the aids of the Postmaster General in commanding

the postal army, the department has its own legal staff, and its own force of traveling representatives or inspectors. These forces in cooperation are at all times busily engaged in protecting the public in health and pocketbook from the nefarious schemes of fakers and swindlers. The use of the mails is denied for the conduct of lotteries, fake patent-medicine peddlers, and fraudulent schemes of many kinds. The solicitor's office has secured the issuance of "fraud orders" against many organizations engaged in selling worthless oil stocks, which is one of the commonest and most vicious forms of swindling in which the use of the mails is sought. In certain instances, however, the department is unable to protect the innocent and gullible or to punish the wicked and unscrupulous. A somewhat amusing example of this is afforded by a letter received by the solicitor containing the plea of a disillusioned and deserted wife that her husband be punished for courting her through the mails and grossly misrepresenting his character and responsibility.

Counting the stamps on stamped envelopes, postal cards, and newspaper wrappers, over 19,000,000,000 are issued every year. These range in value from 1 cent to $5. The average stamp user has never seen a $5 stamp, yet several thousand are sold each year. The latest design for this value is designated America and is in red and blue on a white background. Many hundred thousands of $1 stamps are also sold each year, and the number may increase since the department is urging the public to use high denomination stamps where a piece of mail requires a large amount of postage. In years gone by the Government issued a stamp worth $100. It was a newspaper stamp, and was never seen by the public. It was placed on the book in the office of the dispatching postmaster and canceled there. All newspaper stamps have been discontinued.

The story of the origin of the postage stamp is interesting. Some 77 years ago Rowland Hill was staying at an English inn when the daughter of the landlord received a letter by

mail. Looking it over from one end to the other she inquired of the postman what the charges were. He replied that it was a shilling. She did not have the money to pay the charges and Hill paid them for her. Afterwards she told him she was sorry he had done so, that she and her lover had evolved a little code of their own by which they put their messages on the outside of the letters and thus could send them through the mails without paying, allowing the postal authorities to destroy the letters after they had looked them over and refused to pay the charges. The pay-in-advance stamp was the result.

The postal revenues are increasing faster than the population, as is emphasized by the per capita sales of stamp stock. In 1837 the average citizen spent 32 cents a year for postage. In 1915, the amount had jumped to $2.85, while now each individual spends $3.92 annually, or an average of four 2-cent stamps each week for each man, woman, and child, in addition to sales of the larger denomination stamps. The per capita postal revenue from all sources exceeds $4.41 per annum.

Stamp collectors are enthusiastic purchasers of American issues. The demand from all parts of the country for specimens of stamps no longer issued has resulted in the opening of a Philatelic Stamp Agency by the department. During the first seven months of its existence over $20,000 worth of stamps were sold, but the first month of 1923 established a record of $13,500. The money received for stamps placed in philately collections represents almost a clear profit to the Government inasmuch as no service is required.

There are many curious things in the Postal Service. The strangest post office from which the American Postal Service receives mail is one on the Galapagos Islands, off the coast of Ecuador. It is nothing but a barrel in which letters are distributed semioccasionally. All mariners in those waters know of this post office, and when in that vicinity go to look in the barrel for letters. Some of these which never reached

the addressees, perhaps because they had been drowned, reached Washington very much the worse for wear.

Mail usually gets to its destination in the shortest possible time, but once in awhile a letter or a package of letters will not show up for years. Some three years were required for the delivery of a letter to Paterson, N. J., from Midvale, some 5 miles distant, while recently there arrived a postal card mailed in Pennsylvania nearly 12 years ago. In another instance a letter arrived in an eastern city bearing congratulations to a proud father upon the birth of a son. When it arrived, that son had been three times congratulated upon the birth of children of his own. Not long ago a letter was received from Italy addressed to "His Majesty, the President, Post Office Officiale, Business No. 13, Washington, D. C.," requesting "His Majesty" to locate some baggage lost two years before by an Italian tourist while traveling in the United States. No description of the missing property was provided except that one piece weighed 120 pounds. Another letter received from Ireland sought information concerning a man said to have resided in a town known as Washington for some 20 years. There are, however, 28 Washingtons, showing the popularity of the great Father of the Country. Luckily for postal clerks there is only one New York and one New Orleans, but there are 25 Clevelands, 22 Buffaloes, 6 Philadelphias, and 2 Chicagos, while there are 31 Franklins, 24 Lincolns, and 24 Monroes.

The rules of the department prescribe that there must not be in the same State two offices of the same name. Consequently postal officials are not infrequently consulted by committees about to select a name for a new urban community. In Missouri some years ago one of these newly organized committees applied for a post office, sending in the name which they had chosen for it. The department informed the applicants that the same name was already in use in another part of the State. Later another list of preferences was submitted, but not one of them was satis-

factory. After considerable correspondence an official of the Post Office Department finally stated in a letter to the city fathers that it was "mighty peculiar they could not find a good name." "Acting on your suggestion," they replied, "we select the name Peculiar," and so Peculiar, Mo., is on the map to-day.

The Post Office Department is a maker of maps as well as a carrier of mails. Using all Government surveys, it makes post-route maps of the States, showing post offices and all mail connections, and also rural-delivery maps of the principal counties on an enlarged scale, showing all the roads and residences.

The Dead Letter Office is one of the most interesting divisions of the service. It receives about 16,500,000 "dead" letters and parcels a year and some 9,000,000 post cards and postals. It is estimated that postage amounting to more than $350,000 was prepaid on this undeliverable matter. In addition about $92,000 was collected for opening, examining, reenveloping, and returning letters which did not bear on their envelopes the senders' addresses. The loss to the general public, largely through neglect, therefore amounts in the aggregate to about half a million dollars annually, in addition to the value of the articles which can not be forwarded to their destination or returned to the senders. Until recent years, when lack of space forced its discontinuance, a museum was maintained where many of these strange relics of the mail were put on exhibition. One of these exhibits was an old white hat bearing lines and rhymes telling of the romances of school days. Another was a rattlesnake's hide. There were also doll-baby's legs, a grinning skull, an old-fashioned wooden stirrup, and the hind legs of a wolf. Several thousand unmailable photographs and books also come to the Dead Letter Office each year, and are promptly destroyed. No letters or packages are sent to the Dead Letter Office until they have been given directory service at the post office to which they are addressed, and all

available sources of information as to the location of the addressees have been exhausted. The New York City office readdresses more than 250,000 pieces of mail every day.

One of the unique events in the Postal Service is the semi-annual dead letter sale. The proceeds of these sales amount to many thousands of dollars, all of which becomes the property of the Government. Formerly it was one of the greatest lotteries imaginable. A young woman made the highest bid on a package containing a set of false teeth. A woman-hating man was the successful bidder on a parcel containing a lot of false hair. At the present time, however, the prospective purchaser is afforded full opportunity before the sale to view and appraise the articles which he desires to purchase. The articles offered to the public at these sales include automobile tires, clothing, books on every known subject, musical instruments from jew's-harps to violins, silverware, dishes, electrical supplies, hand plows, suit cases, rat traps, typewriters, rouge, and wrist and pocket watches of all descriptions.

Each year thousands of letters come to the post offices of the country addressed to Santa Claus. Formerly these were all destroyed, but President Roosevelt granted Miss Elizabeth Phillips the right to take these letters and, as far as lay in her power, to grant the requests contained in them. Within a year Miss Phillips became widely known as "The Santa Claus Lady." Her untimely death caused much sorrow among the poor children of the country. At the present time postmasters are authorized to deliver Santa's mail to local charitable organizations which usually make a request for them.

"Yet Sun Mon Gee—Soo Jip Paw—Yet Sen." These words may sound foolish, but they really mean something in the Chinatown of a big eastern city. Their use by a letter carrier who has a Scotch name further emphasizes the versatility and efficiency of these servants of the public. In English the postman is merely telling his patron that

he has a newspaper, a small catalogue, and a letter for him. Chinese is sung and not spoken, so the carrier keeps his vocal apparatus in fine shape on his daily rounds. However, he must be careful of his accents, for three words with a rising inflection do not mean at all the same thing as the same three sung dimuendo. Strangely the prettiest tune means "sign your name". The words are "ting-o-ming", with "ting" high, "o" low and "ming" high again. Through this employee of the postal establishment with his Highland brogue and Chinese dialect, the Orientals of his territory bought more than a million dollars' worth of Liberty bonds during the war.

The Postal Savings System was first established in 1911, and on January 3 of that year 48 post offices began to function as agencies for the greatest and safest banking institution in the world. Before the end of the same year 400 offices were engaged in receiving and safeguarding the savings of the people and 11,918 depositors had entrusted $778,129 to the care of the Government. At the present time some 500,000 residents of the United States have postal-savings accounts totaling in the aggregate $150,000,000.

Until lately the postal workers of the United States have not been regarded as a fighting organization and, consequently, have not been armed. As a result there were many sensational and successful hold-ups of mail trains and mail carrying trucks in which the postal employees were completely at the mercy of the bandits and huge sums of money and valuables were looted from the mails. During the year 1921 when the country was said to be suffering from a crime wave, these losses of public property ran very high, totaling over $6,000,000, of which, however, over $3,000,000 was recovered. At one time the situation was so desperate that the United States Marines were called upon to guard every mail train, truck, and terminal. At the present time, however, there is a well-organized force of postal employees

to guard the mails day and night. Records show that these men do not hesitate to use their guns. In addition to this special force, every postal worker employed in the transportation of the mails is himself a guard. He is equipped with an automatic revolver and thoroughly trained in the use of it.

Burglarizing post offices is another activity in which the underworld indulges itself with considerable regularity and persistence. This business, however lucrative to its devotees, is nevertheless being discouraged and constantly made more difficult by the Post Office Department. One of the latest devices is adapted for adjustment to the locking mechanism of safes. When a burglar attempts to drill a hole for the insertion of nitroglycerine, the device locks automatically, and no matter how many more holes may be drilled the safe can not be opened. This new locking device will supplant the little pint bottle of ammonia which has been used for the last five or six years. The ammonia, in concentrated form, was so placed in the safe that the force of an explosion would break the glass and release the acrid fumes which generally suspended further action by the burglars until the atmosphere cleared. Frequently this delay enabled local authorities, aroused by the explosion, to reach the scene before the departure of the bandits, and either effect their capture or frighten them away without having robbed the safe.

VIII

THE PARCEL POST

THE first package ever sent by parcel post in this country was a feathered fan received at the White House by Mrs. Grover Cleveland, wife of the former President. Government officials of the island of Jamaica dispatched it in 1887, after the negotiation of a new postal treaty. This event, however, did not mark the establishment of the present Parcel Post System in the United States. This most important addition to the Postal Service first began to function on New Year's Day, 1913, since which time more than a billion dollars has been paid by the American public for the transportation of parcels weighing from a few ounces to as much as 70 pounds. During the first year of its existence the system delivered 417,000,000 packages at a cost to the public of only $40,000,000. Recent reports indicate that during one year over a billion packages have been admitted to the mails as parcel post. The total weight of these packages is more than 4,000,000,000 pounds. For the safe handling of this enormous amount of valuable matter the Postal Service received only $160,000,000.

These figures indicate the popularity of parcel post, and prove beyond doubt that abundant use is made of it by the people of the United States. Mere figures give little idea of what the establishment of this great system has meant to the people as a whole and particularly to those living in outlying agricultural districts. Each year the mails carry enormous quantities of farm produce directly from the farmer in the country to the consuming householder in the city. Daily, millions of fresh eggs and tons of rich country butter

are transported safely and cheaply from the farmyard and the dairy to breakfast tables of purchasers living hundreds of miles distant from the sellers.

Prior to 1913 the farmer was obliged to ship his crops by freight or express, often being obliged to haul his wares long distances to the warehouses of the railroad companies, and frequently suffering considerable losses through the delay and spoilage of goods in transit. The establishment of the parcel-post system has relieved this situation greatly. Horse-drawn and motor vehicles daily call at the agriculturist's front door to collect his boxes of fruit or vegetables for expeditious and safe delivery to the consumer. At certain seasons of the year special collection services are operated for the benefit of these rural patrons, who are learning to depend more and more on the Postal Service for the marketing of their produce. During one season in parts of Kentucky entire tobacco crops were moved by parcel post. In Florida and California the same means has been employed in transporting fruit. Colorado farmers market great quantities of celery through the mails, while farmers in other sections of the country are displaying keen appreciation of the advantages and possibilities of using parcel post to market the products of their truck gardens.

Ten years ago not even the most foresighted poultryman would acknowledge the possibility of sending day-old live chicks by mail. For some years past the parcel-post system has been the medium of carriage for millions of these frail little fluff balls. The percentage of casualties among these chicks is very low and those which occur are largely due to lack of care on the part of the sender. When it is considered that the same postal car must carry heavy boxes, machinery parts, and other iron and steel objects weighing in some instances the maximum of 70 pounds, all of which must be packed in a comparatively small space, it is remarkable that the service undertakes the care of such tender birds and delivers them without the service being at fault.

Occasionally the service is called upon to carry baby birds other than day-old chicks. Recently two newly hatched ostriches were shipped from the Florida peninsula to the far northwest corner of the State of Washington, probably the longest straight line distance that can be traveled in the continental limits of the country. The long-legged babies were brought to their destination alive and kicking. These ostrich "peeps" were about the size of full-grown brown leghorn hens.

Another report from the far Northwest brings the story of the arrival at Seattle of a $70,000 shipment of furs from the Kuskokwim River district. This is said to be the first time the parcel post has been utilized for fur shipments in such large quantities. The consignment consisted of 90 sacks and included pelts of red and white foxes, marten, beaver, and muskrat.

The sons and daughters of the nation who have fared forth from the paternal fireside and reside in distant cities constantly resort to the parcel-post system to reduce living expenses. The postmaster of a typical large city with a population of nearly 500,000 states that about 2 per cent of the parcel post passing through his office is laundry bags. The business is especially large in university towns. Students find it cheaper to send their laundry home each week at the cost of a few cents than to have it done at commercial laundries. The postmaster at Champaign, Ill., which is the post office for the University of Illinois, reports that his staff handled 165,000 laundry bags during the fiscal year of 1923. The postal substation on the campus of the University of Michigan does an annual business of $100,000, a considerable part of which represents postage collected on laundry bags, 1,200 being received daily. At this office a fleet of seven trucks is constantly engaged in delivering students' laundry.

The general popularity of the collect-on-delivery privilege in the mailing of parcel-post packages is plainly indicated by the tremendous increase in the amount of fees collected

by the Post Office Department since the establishment of the service in July, 1913. During the first year 2,994,600 parcels were mailed C. O. D., the fees amounting to $299,460. The present rate of mailing requires the handling of about 31,000,000 collect parcels, for which fees are paid aggregating over $3,000,000. For the first four years the indemnity a sender could claim for the loss of a package was limited to $25, a 10-cent registration fee being charged. In 1918 the maximum indemnity was increased to $100 upon the payment of a 25-cent fee.

For a time certain enterprising and unscrupulous persons sought to abuse the privileges of the C. O. D. service by shipping collect-on-delivery articles which had not been ordered and without the consent of the addressee. Frequently attempts were made to collect the value of the article even though it had been refused and returned to the point of origin. After repeated warnings, in which the department pointed out that this action might be construed as an attempt to defraud and a violation of law, the practice has virtually ceased.

Despite the fact that the institution of the parcel-post service has added tremendous additional burdens to the Post Office Department, comparatively little additional equipment has been added to that used before 1913 for handling the already enormous postal business of the Nation. There has, however, been one noteworthy addition to the buildings used by the department. The Van Buren Station at Chicago, Ill., is said to be the world's largest mail terminal. It is 6 stories high, 80 feet wide, and 2 city blocks in length. This structure contains 10,208,000 cubic feet of space, is manned by 1,300 postal workers, and provided with 12 miles of belt conveyors. When in full operation the terminal has a capacity for handling 100,000 sacks of parcel post, or 2,400 tons per hour.

IX

THE NAVY DEPARTMENT

THE United States Navy is the Nation's first line of defense. Situated as we are with thousands of miles of ocean between our shores and those of any possible foe, the American people know that so long as their fleets command the seas the home land will remain safe from invasion. Knowledge of these facts became rooted in the minds of Americans at a very early period in the Nation's history and as a result the United States has always been committed to the maintenance of a strong Navy. Hundreds of millions of dollars have been spent on naval construction and upkeep, and thousands of our young men have spent their lives in the naval service. The Nation has always gladly given of its best to the Navy, secure in the knowledge that in so doing it has been providing certain insurance against the horrors of invasion and war.

How well the Navy has fulfilled its part is a matter of record. For more than a hundred years no foreign foe has set foot on American soil. The Navy has written some of the most brilliant pages in the annals of American history and some of the Nation's most picturesque and heroic figures have walked its forecastles and quarterdecks. Every schoolboy knows the story of the exploits of the daring and indomitable John Paul Jones, of the intrepid Barry, of the gallant Dewey, and a host of others almost equally notable who have gone down to the sea to serve their country in ships.

During its most recent test, in the World War, the Navy

met and accomplished the tasks with which it was confronted in a manner in every way worthy of the high traditions of its history. Coming into the war at a time when the commercial fleets of the allied nations were melting like snow in the furnace before the raids of the German submarine flotilla, when Great Britain and France were feeling the pinch of hunger, and the result of the war trembled in the balance, the American Navy performed services at sea less spectacular but in every way as important to the allied cause as the victories of the matchless American Army in France. It invented new methods for conducting naval warfare and did more to abate the submarine menace in a few short months than the combined allied navies had been able to accomplish during nearly three years of war.

The Navy was not called upon to meet the foe in battle upon the surface of the seas in accordance with the accepted rules of naval warfare. Faced with the superiority in guns and ships of the allied navies the German battleship fleet retired after the Battle of Jutland behind its line of fortified harbors, and never emerged while the war lasted. Unable to obtain the mastery of the sea with their heavy fighting ships, the Germans devoted their attention to a campaign underseas. They built huge, speedy submarines which were of little use against properly safeguarded warships, but proved effective against the slow, defenseless merchant ships that carried the vitally necessary supplies. For several months the total of shipping sunk by submarines ran to a third of a million tons per month. This was more than the shipyards of the world could build, and the best brains of the allied navies struggled in vain to find a solution of the problem.

This situation was met by the Navy in a manner worthy of the inventive genius of Americans. Several plans were recommended which brought about a revolution in the methods of antisubmarine war, and steadily reduced sinkings of merchant ships until, in October, 1918, they fell to only about 100,000 tons. The first of these plans which proved

of great effect in combating submarine warfare resulted in the adoption of the convoy system by which all merchant ships engaged in ocean journeys were grouped together in large convoys escorted by flotillas of destroyers and submarine chasers. This replaced the plan formerly employed of sending out destroyers and submarine chasers to patrol the whole surface of the ocean lanes and the waters around the allied coasts.

The Americans argued that if submarines were to sink merchant ships, they would have to search them out and attack them. If no merchant ships were allowed to sail except in convoys, the submarines would have to attack the convoys and consequently expose themselves to the attack of the antisubmarine warships. It would be unnecessary to send destroyers and subchasers combing the entire seas when by sending them with the convoyed fleets, the submarines would be obliged to attack them. Eventually this logic won, and from the time the system was adopted, fewer and fewer merchant ships were torpedoed while more and more submarines met their doom in attempted raids on the closely guarded convoys.

Another contribution of the American Navy which did much toward rendering allied victory certain was the Northern Mine Barrage. This was literally a wall of mines under the surface of the ocean several miles wide, extending from 30 feet below the surface to more than 200 feet down, and running from the northern coast of Scotland to Norway, across an arm of the sea more than 200 miles wide, ranging from 300 to 500 feet in depth. Extending practically from the surface to a depth below which it was impossible for a submarine to dive, and composed of mines of terrific power so delicately adjusted that the slightest touch sufficed to explode them, this barrage closed to the German undersea boats their best exit to the high seas and contributed more than almost any other single factor to their ultimate defeat.

Admittedly none but American ingenuity and engineering

skill could have accomplished this task, as the Allies had several times considered it and rejected it as impossible of performance. For its construction nearly 100,000 mines were used, having an aggregate weight of about three-quarters of a million tons and costing more than $100,000,000. A type of mine entirely new in naval warfare was developed, so perfect that it seemed almost able to think for itself. Weighing nearly a ton and carrying a charge of 300 pounds of high explosive, this mine was so constructed as to attach itself firmly to the bottom and float at a given distance from the surface. Connected by steel cable with a new and efficient anchor, on being dropped overboard from a mine-laying vessel, the anchor would separate from the mine and sink to the bottom while the cable would automatically unreel itself until the mine with its explosive charge arrived at the predetermined depth. Then the unreeling would stop and the mine would remain anchored at a depth of 30, 60, or 100 feet, or any depth for which the mechanism was set.

These mines carried safety devices which rendered them safe to handle until they were dropped overboard and submerged to a depth of at least 30 feet under the sea. In case they should break from their moorings and float to the surface the devices were so constructed as at once to apply a safety catch to their detonators making it absolutely impossible to explode them on contact. Special mine-laying ships were designed to handle these mines which proved so efficient that 5,520 mines were laid by one squadron in a single operation in less than four hours, a feat unparalleled in naval history.

Beside the offensive measures against the submarine, the huge task of transporting to Europe the giant American Army formed a portion of the Navy's war problem. How well it did this is a matter of history known to every doughboy. The slogan: "The Navy takes 'em over and the Navy brings 'em back," is one which became familiar to every member of the American Expeditionary Force in Europe. American

naval transports carried more than a million soldiers to Europe and brought back about a million and a quarter of the men of Pershing's army. American destroyers convoyed 1,250,000 troops of the A. E. F. through the submarine-infested waters to European ports without the loss of a single man from enemy attack. In all, the vessels of the convoy squadrons are estimated to have steamed more than a million miles during 1917 and 1918 in their task of seeing the Army safely across the ocean.

The Navy established 14 principal naval bases and depots in European waters from which a fleet of about 400 vessels operated. Nineteen airplane stations were operated in Europe by naval aviators, from which in the neighborhood of a thousand airplanes, principally of the seaplane type, were operated, flying three-quarters of a million miles in submarine patrol and bombing expeditions. At the signing of the Armistice, more than half a million enlisted men and 30,000 officers wore the naval uniform.

The conclusion of the war found the American Navy in an extremely strong position. With a mighty armada afloat, and a still more powerful one on the stocks in the course of building, America held within her grip the unquestioned dominance of the seas. Certain foreign powers, however, felt that such undisputed American supremacy at sea might constitute a threat against their national interests, and a shipbuilding race for naval supremacy seemed imminent. With a view to obviating such a competition, the late President Harding called the Limitation of Armaments Conference at Washington, at which rules definitely fixing the naval strength of each of the great powers until December 31, 1936, were adopted. In accordance with agreements then entered into by the principal naval powers, the world's navies were to hold a given ratio to each other for a period of about 15 years. For every five battleships possessed by the United States, Great Britain is to have five, Japan three, and France and Italy about two each. These agreements

were framed to put an end to the ruinously expensive race for naval supremacy in the matter of building fighting ships and to avoid the resultant jealousy and race hatred.

When the agreements were entered into the United States had in course of construction nine battleships and six battle cruisers of types infinitely more powerful and efficient than those possessed by any other nation. These ships would all have been completed within a few years and would have rendered the United States about twice as powerful at sea as any other nation. Practically all of these magnificent ships have been broken up and sold for junk. By this action the American people gave proof of their altruism and love of peace, sacrificing certain naval supremacy at a saving of approximately 2 per cent of their annual revenue—the cost of completing the ships. The United States Navy now is to be more powerful in capital ships than that of any other nation except Great Britain and the equal of the British Navy, our battle fleet consisting of 18 battleships and an appropriate ratio of auxiliary vessels, cruisers, destroyers, submarines, airplane carriers, and airplanes.

To support the main fighting strength of the United States Navy a huge organization is necessary. This centers in the Navy Department in Washington, under the head of a Cabinet officer, the Secretary of the Navy. He has under him, in charge of the technical operations of the Navy, a Chief of Naval Operations, with the rank of admiral, equivalent to a general in the Army. This admiral is the senior officer in the Navy and his word in the service is law. Next to him, also with the rank of admiral, but junior in grade, are the Commander in Chief of the United States Fleet, the Commander in Chief of the Battle Fleet, and the Commander in Chief of the Asiatic Fleet. In addition there are three vice admirals, equivalent in rank to lieutenant generals of the land forces, in charge of important departments of the fleet organizations, and rear admirals in charge of each division of four superdreadnoughts, forming the main fleet,

and of each important division of the scouting and supply branches.

In addition to these divisions of the actual battle forces there are shore forces including the departments of Navigation, Ordnance, Engineering, Supply, Medicine and Surgery, Construction and Repair, Aeronautics, Yards and Docks, each in the charge of a rear admiral. There is also in the Navy Department a Commandant of the Marine Corps, with the rank of major general, charged with the duty of supplying sea-soldiers for the necessary land and sea duty with the ships of the Navy. Other divisions of the shore establishment include great dry-docks and machine shops at navy yards at the great harbors on the east and west coast, and at points of strategic value in our colonial possessions.

There were authorized for the Navy, under the bill of July 1, 1918, 5,499 officers and 137,485 men, making the total personnel, and 28,500 Marines. Under the appropriation bill for 1922, however, only 86,000 enlisted men in the Navy and 19,500 Marines were provided for, as it was decided that during the period of financial stress the Navy and Marine Corps could perform their functions with reduced forces.

To man the modern warships a new type of sailor has necessarily come into being, a sailor who knows almost nothing about ropes and sails. Fully 50 per cent of the Navy personnel consists of specialists, more than 30 callings being represented. As an example, a destroyer is manned by 50 sailors in the ranks and 64 petty officers, and in the Navy a petty officer generally means a gunner's mate, a machinist's mate, or some other expert. Recruits, being young, are seldom skilled. It is necessary, therefore, to train them. In 1921, 12,063 men completed courses in the Navy schools. The graduates included blacksmiths, painters, shipwrights, bakers, cooks, fuel-oil experts, electricians, machinists, musicians, opticians, signal men, submarine men, and stenographers.

One means by which the Navy hopes to attract and retain

the right kind of young men is by issuing insurance on the future of those who make a career of the service. After 16 years a Navy man may be transferred to the Fleet Naval Reserve, where the average pay for men of his class is $73 a month. Twenty years of service entitles the Navy man to a transfer to the same reserve, but with a higher rate of pay, the average being $104 a month. This transfer system is holding a good many high class men in the service, but with 86,000 men in the standing Navy, it is necessary to enlist 30,000 men a year.

The United States is divided into 37 recruiting districts, each covered by a recruiting officer, medical officer, and force of recruiting men. The recruiting service is highly organized. The men are taught the principles of salesmanship, treating the Navy as a commodity which they are to sell to the public. They are graded on the results, counting enlistments as sales. This system has greatly cut the cost of recruiting. Only $100,000 was spent for the purpose in 1922, as compared with $1,200,000 in 1920.

The quality of the men enlisted is insured by medical examination at the recruiting station and by use of reference forms from previous employers. The standards required reduce the number of acceptances to 35 per cent of the applications. This number is further reduced at the training station, where more careful medical examination may reveal physical defects not discovered at the recruiting office.

Nothing was so strikingly demonstrated during the late war as the supremacy of the heavy fightingship. The airplane and the Zeppelin, with their novel and sensational methods of attack, drew much attention, but not a single capital ship was injured by bombs from the air. In fact, no airplane or dirigible ever attempted to get near enough to one to deliver a telling blow. The weakness of the ship of the air as a fighting instrument is its short radius of action and inability to operate in bad weather.

During the World War, the submarine also attracted great

attention through its sensational use by the Germans. A careful search of the records, however, reveals that not a single capital ship of the British Grand Fleet was sunk by a submarine. British and French fleets operated constantly in waters infested with submarines, but while the commercial fleets of the Allies were reduced almost to extinction, not a single one of the great ships of the line was damaged. The submarine, although a valuable auxiliary, has two weak points in its blindness and vulnerability to an explosive depth charge. Once entirely submerged the submarine can not see to fire a shot or even to set a course to intercept the enemy without projecting its periscope above the surface. Battleships are accompanied by fleets of destroyers and scouts equipped with listening devices of the microphone variety more sensitive than the stethoscope by which the doctor listens to the workings of a suspected heart. Listeners stationed at these electrical ears can tell instantly when a submarine comes within a radius of several miles.

The greatest factor in the winning of the World War by the Allies was the British battleship fleet. Could the German armies have landed in Great Britain the war would have ended in 1914. Could the Germans have secured supplies by unrestricted purchase in the world's markets they must inevitably have won before the United States joined the Allies. Through the war, however, the British fleet dominated the surface of the waters, sweeping German commerce from the seas, protecting Great Britain from invasion, and maintaining the blockade of German ports which rendered certain Germany's defeat in the end.

Of the eighteen battleships which constitute the main body of American naval strength, three are ships of the so-called post-Jutland type. These are the *Colorado*, *Maryland*, and *West Virginia*. Post-Jutland means that they are ships constructed after the Battle of Jutland, so that it was possible to embody in them the vital lessons learned in that great naval engagement. So great is the value of those

lessons it is considered that one of these ships is a match for two of the pre-Jutland type of similar tonnage and armament. The post-Jutland ships are monsters displacing some 33,000 normal tons and carrying eight huge 16-inch guns in four two-gun turrets. Their armor is more than a foot in thickness, rendering them almost invulnerable to gunfire. They are subdivided into water-tight compartments so arranged that the utmost damage which could be caused by a single direct hit from the largest torpedo or 2,000-pound aerial bomb would be the flooding of about one sixty-fourth of the total displacement of the ship. This would not seriously impair its fighting powers. Ships of this type can be sunk only after continuous and terrific hammering by mines, torpedoes, airplanes, or concentrated gunfire. In the Jutland battle the *Marlborough* was struck by submarine torpedoes loaded with 2,000 pounds of gun-cotton, and was hit by shells of all calibers, yet it was able to take part in the decisive phases of the action and return to port under its own power. It is estimated that owing to their later construction ships of the type of the *Colorado*, *Maryland*, and *West Virginia* could endure at least twice as much punishment and still continue to fight.

The eight 16-inch guns carried by these ships are monster products of the latest science in naval ordnance, each nearly 70 feet in length and weighing 105 tons. Each of them is capable of throwing shells weighing 2,100 pounds and of firing one round per minute. The muzzle velocity of these shells is 2,600 feet per second and their muzzle energy, 98,406 foot-tons, sufficient to lift three ships as large as the *Colorado* a foot in the air in a second. A single broadside from the eight guns represents greater weight of metal and infinitely more energy than the entire muzzle energy of all of the guns of the American fleet at Santiago Bay and Manila in the War with Spain.

The extreme range of these monster guns is in the neighborhood of 40,000 yards, or nearly 30 miles. They are

sighted by mathematical instruments and computations of the greatest complexity which take into account the speed of their own ship, the speed of the enemy ship, the wind, the velocity of the shell, and the curve and drift which make up its trajectory. All these elements have been compiled in tables so that calculations for firing at any range under any conditions may be made in less than a minute. Each of the ships carries scouting airplanes which ascend to a great height and note the fall of the projectiles, sending wireless corrections in case shots fail to hit. The shells are capable of penetrating more than 4 feet of solid wrought iron at the muzzle velocity, and at 20,000 yards will penetrate 16 inches of battleship side armor as easily as a hot knife cuts through butter.

A fleet in battle formation may be described as occupying a circular area from 100 to 300 miles in diameter. On the perimeter of the circle are the first elements of the fleet, the destroyers, small, agile ships of 33 knots speed, which act as eyes and feelers. Each is equipped with powerful radio sets with which to keep in constant touch with the admiral in command, supplying him with information as to the enemy and of dangers of all sorts. A few miles back of the destroyers come their supports, the destroyer leaders, vessels of great speed and similar type, but twice the size of the destroyers proper. These are designed to lend the support of heavier guns and greater power to the light ships of the scouting line. With the destroyer leaders are stationed airplane mother-ships each carrying strong quotas of fast fighting airplanes and heavier planes of the bombing type, capable of dropping explosives on ships which venture too near. Back of these come forces of mobile cruisers of great speed and consider-able gunpower, which can be concentrated rapidly to support the destroyer forces in the event of attack. With these are other airplane carriers and behind them are the fastest ships of the heavy fighting force. In the center of the vast circle are the heavy squadrons proper. Communication through

this vast machine is maintained by radio and by messages carried by a web of destroyers and fast cruisers set aside for the purpose. On the outskirts of the fleet and at points scattered throughout the area covered by it, fleets of submarines with their mother-ships are stationed, ready for attack or defense.

When such a fleet goes into action, the first contact occurs when the destroyers at the fringes of the two fleets come together. Then frantic wireless calls are sent for other destroyers, destroyer leaders, and fast cruisers, to reinforce the advanced groups. Airplanes take the air to discover what forces are behind the destroyers and to harass the fighters by dropping bombs and by bursts of machine-gun fire. Submarines hastily slink under water with only periscopes showing and seek a chance to launch their deadly torpedoes. Simultaneously a struggle is waged to determine supremacy in the air. Fast scouting planes engage in combat with each other and endeavor to shoot down the heavier and slower bombing machines with their deadly loads of explosives. Other planes attempt to flank the fighting groups and scout out the surface vessels of the enemy in the vicinity so as to be able to report to the admiral at the center of operations the strength of the foe.

Within a short time each admiral forms his opinion as to the strength at the enemy's disposal and decides either to fight or to retreat. If battle be decided upon, wireless orders are sent concentrating heavier groups of fighting ships upon an area determined. Light and heavy cruisers rush forward to reinforce the struggling groups of destroyers and destroyer leaders. Submarine groups are dispatched to points of vantage from which they may hope to launch a deadly attack. Additional airplane carriers rush to positions determined upon as best suited for launching their wasps of the air. Behind these advanced forces the main battleship squadron steams forward at approximately 20 knots speed in battle formation. From the first contact of the scouts,

if battle be decided upon at once, probably at least five hours intervenes before the opposing battleship squadrons come into contact. When at last these approach within 15 miles of each other, preliminary ranging shots are fired while the great ships are below the horizon and before even the tops of masts can be seen. A maneuver for position ensues, each admiral striving to bring his fleet into action so that the guns of all his ships may be concentrated upon one or two of the enemy.

While the main fleets hammer at each other with huge shells approximating a ton in weight, the auxiliary arms of the forces still remain locked in a death grip or slip into the main fight and endeavor to deliver a blow at the battling giants. Destroyers lay repeated smoke screens in front of their own dreadnoughts, rendering it more difficult for the enemy to aim his shots. A submarine attack may be launched under the cover of destroyer smoke. Bombing airplanes may be sent in squadrons over the grappling leviathans in the endeavor to drop bombs that would put one or more of them out of commission. In view of the fact, however, that the dreadnoughts of each fleet are defended by clouds of fighting planes, capable of out-maneuvering and shooting down the slower and heavier aircraft, the success of such a maneuver is doubtful.

At the final stages of such an action the big ships move in to a range of 4 or 5 miles and engage in a duel, in which their shots are as effective and as certain to score hits as those of two men fighting a revolver duel across a table. At such a range each ship of the *Colorado* type can throw into the vitals of an opponent nearly 16 tons of heavy shells per minute, and no craft has ever been designed which could stand up for many minutes against such punishment. In the final stages of such an action, a destroyer charge would probably be tried by the losing side, such as the Germans ordered at Jutland. Such a charge is similar to the cavalry charge by which a land leader endeavors to turn

defeat into victory or, in case of a retreat, to harass the enemy's pursuing force. In such a charge the attacking destroyer force would almost certainly be wiped out, but a dozen lucky torpedoes driven home on the sides of half a dozen of the enemy's capital ships would more than repay that loss.

Such is the modern machinery of naval warfare. It is shaped for battle simultaneously on three planes of action, not on the sea's surface alone as of old. And behind every gun, at every valve or controlling device, in the air or on the water or in its depths, the bluejackets are always ready to battle in America's cause with hearts as staunch for the grim business as the steel of the ships they man.

X

THE MARINE CORPS

One of the most interesting and picturesque arms of the Government is the United States Marine Corps. Organized to supply the Navy with trained infantry for land fighting or duty, the Marine Corps served the Nation faithfully and valiantly and supplied generation after generation of adventurous fighting men without coming much into the public notice until the war with Germany and her Allies. In May, 1918, however, when the great German offensive had broken through the French lines and was rolling toward Paris, by a mysterious working of fate and fortune, it was a brigade of Marines that was flung into the gap in the Allied line to stop the onslaught of the victorious Prussian Guard.

The battles which resulted in Belleau Wood and the Chateau-Thierry sector form one of the classics in the annals of the American people. It would probably be hard to find an American who lived through the dark days of the war who does not recall the thrill which ran through the United States as the story of the desperate stand of the Marine Brigade against the German horde was told day after day in newspapers and on bulletin boards all over the country. The Marine Corps leaped into fame and the Marine Brigade, through its desperate and victorious battles in the Belleau Wood, called by General Pershing "the Gettysburg of the World War," changed overnight the despair of the Allies into confidence and established once and for all the fighting qualities of American manhood as second to none in the world.

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Sensational as were the exploits of the Marine Brigade in the World War, they form but a chapter in the annals of the wars and battles of the Marine Corps. Records show that since the establishment of their organization Marines have been fighting almost constantly. Military authorities agree that there have been few bodies of soldiers in the world's history which have compiled such a record of continuous service in the field. The records of our country show that the marines have been in action more than 90 years of the 147 of our national existence. To the average American who has formed the habit of thinking of his country's history as one of comparatively uninterrupted peace, the knowledge that American Marines have been called upon to fight during nearly two-thirds of the years since the establishment of the Government will come as something of a shock. It is a fact, however, that even during the years when the country, as a whole, enjoyed the most profound peace, the Marine Corps has fought almost continuously. Twenty-two of the past 24 years, for instance, marines have spent in some quarter of the globe in protection of American life and property, and there are many officers and men in the Marine Corps to-day who have grown gray in war in the service of their country with seldom an opportunity of enjoying more than a few short intervals of peace.

The reason for the varied and continuous service of the Marine Corps lies in the varied nature of its mission and its responsibilities. In time of war the marine is a soldier and a sailor, too. His first duty is to the Navy, and the first mission of the Marine Corps in war is to supply to the Navy a land force skilled in the necessities of naval war and under the absolute control of the Admiral of the Fleet. A navy can not operate without land bases. If these bases are desired in enemy territory they must be seized by soldiers accustomed to land warfare and able to fight on land as a complete land army. It has been found that this work can not be accomplished in a satisfactory manner by a regular

land army. Difficulty is experienced in placing army generals under the command of naval officers who must direct such operations. History is full of the stories of military enterprises which have been wrecked by such difficulties of command, notably the Gallipoli campaign of the Allies, where fortifications which might have been captured originally by a few thousand marines later defied a huge land force which was finally defeated after battles which cost thousands of allied lives and lengthened the war by several years.

According to American naval strategy under which the marines are trained, in time of war a force of marines in transports forms a part of every naval organization. When a base is to be seized these marines form a perfectly equipped army, with infantry, artillery, machine guns, tanks, aeroplanes, and all the paraphernalia of war, trained to act in conjunction with the Navy under the absolute command of the admiral in charge of operations. This is the first war mission of the Marine Corps, and to supply forces with the necessary training to do such work two large marine camps are operated under the names of the East Coast and West Coast Marine Corps Expeditionary Forces, at Quantico, Va., and at San Diego, Calif., respectively.

In time of war, should the Navy not need all the men whom the Marine Corps can train, that organization has a second mission, namely, to supply to the Army as many trained soldiers as possible to assist in the defense of the Nation. It was in fulfillment of this mission that the Marine Brigade which stopped the German advance at Belleau Wood was sent to France.

These are the purposes of the Marine Corps in time of war. In time of peace its business is to act as a sort of world-wide constabulary for Uncle Sam. If a missionary is murdered in China, a revolution takes place in Central America, or a savage tribe goes on the warpath in the South Sea Islands, American Marines are called on posthaste to protect American lives and property and to fight the battles of

civilization and good order. It is in such activity that the Marine Corps has found the greatest part of its service. Marines have fought in both hemispheres and in nearly every section of the globe. Marines were with Washington at the battles of Trenton and Princeton, took part in the naval war with France, fought against Mediterranean pirates at Tripoli and the Barbary States, served in the War of 1812, the Mexican War, and the Civil War, fought against West Indian pirates, against Malays, against Chinese, Japanese, and Koreans, took part in several Indian campaigns and in campaigns against the cannibals of the South Sea Islands. They have been in action in defense of American life and property in the Caribbean and Central America on occasions too numerous to mention.

The United States Marine Corps was founded November 10, 1775, eight months before the Declaration of Independence, and the marines were the first military or naval forces authorized by the Continental Assembly. When first authorized they comprised two battalions of about 500 men. Since that time the Marine Corps has grown steadily in size until at present it numbers 19,500. Of these marines, about 3,500 are with the vessels of the Atlantic, Pacific, Asiatic, and European fleets, where each capital ship is supplied with a marine guard of from 75 to 150 men who are charged with military sentry duty and who supply landing forces in case it is necessary to send men ashore. About 1,500 marines are stationed in Haiti and a like number in Santo Domingo, where they are responsible for the maintenance of order in those turbulent countries. Approximately 3,000 marines are stationed at Quantico, Va., where they form the Marine Corps East Coast Expeditionary Force, and about 2,000 at San Diego, Calif., making up the West Coast Expeditionary Force. Some 2,000 marines are at Paris Island, S. C., the recruit training depot, where every marine is sent upon his enlistment for a three months' course of training, and the remainder of the Marine Corps are scat-

tered along both seacoasts, acting in the capacity of guards and sentinels at Uncle Sam's navy yards.

The marine organization includes regiments of infantry, field artillery equipped with French 75s, and heavy artillery supplied with French 155 millimeter guns and huge 7-inch naval pieces, as well as howitzers of the Big Bertha type and the largest sizes. It also includes automatic rifle and machine gun organizations, trench-mortar companies, tanks, a chemical warfare section equipped with all the latest devices known to science, antiaircraft detachments, searchlights, a naval mine detachment, several battalions of engineers, wireless experts, and signal troops; in fact, equipment and experts of all kinds necessary for a complete army of the most efficient and modern type. In addition, the Marine Corps possesses an aviation section supplied both with land and sea planes ranging from tiny scouts of more than 200 miles per hour speed to huge Martin bombers capable of dropping bombs a ton or more in weight. In time of peace the aviation section keeps in practice by delivering mail to inaccessible points in Haiti and Santo Domingo and by carrying sick and injured Americans, Haitians, and San Dominicans to places where hospital attention is available, by which service they have saved many lives.

As an illustration of the variety and multitude of the duties the Marine Corps is called upon to perform, in the winter of 1921-22, on account of an unexampled outbreak of highway robbery in which millions of dollars were stolen from the Government, the marines were detailed to protect the United States mails. For nearly three months marines rode on every mail train and were on duty at every first-class post office in the country. During that time mail robberies dropped from losses of several million dollars in a month to zero, and not a single theft or misdemeanor was ever charged to any of the marines employed. About 2,500 marines were kept constantly busy in this work, which was so efficiently administered that it did not cost the Government a cent beyond the

usual appropriations for the maintenance of the Marine Corps.

The Marine Corps is a part of the Navy Department and is directed by a commandant with the rank of Major General, who is directly under the Secretary of the Navy. At present the commandant is Maj. Gen. John A. Lejeune, a marine for 37 years, who won distinction in the World War as commanding general of the Second American Division in France. The commandant is assisted in the administration of the Marine Corps by a quartermaster, paymaster, and an adjutant inspector. All these are marine officers with the rank of brigadier general and are charged, respectively, with supply, pay, and the details of administration of the Marine Corps. The Commandant of the Marine Corps is appointed by the President upon advice of the Secretary of the Navy. Marine officers and noncommissioned officers have the same title and rank as officers in the United States Army.

XI

THE AIR FORCES

GREAT progress has been made in aviation since the conclusion of the World War and the United States has had no small share in it. Some of the achievements which have vindicated America's right to a place equal to that of any Nation in the science of aviation are: The world-famous flight of the seaplane NC-4 across the Atlantic Ocean, the first time that a crossing was made by aircraft of any kind; the record-breaking nonstop flight of Lieutenants Kelly and Macready across the American continent in the giant T-2 monoplane, and the breaking of the record for speed by Army, Navy, and Marine Corps flyers until the mark was pushed to the astounding figure of more than 260 miles per hour.

Back of these phenomenal achievements is a carefully planned and elaborate governmental machine which makes them possible. The Joint Board of the Army and Navy, including the most expert engineering and constructing talent in all branches of the service, and the National Advisory Committee on Aeronautics, taken from the country's great industrial and manufacturing concerns, act in an advisory capacity to the air forces of the Army, Navy, and Marine Corps. They meet at stated intervals and draw up suggested plans for material, operations, and training which in their judgment would prove beneficial.

The actual administration of the military air forces is divided between a Chief of Air Service of the Army, a major general and head of one of the important branches of the

War Department, and the Chief of Naval Aeronautics, a rear admiral in the Navy, who is the head of an important bureau of the Navy Department.

These two officers are under the command of the respective heads of their departments and are charged with the duty of supplying to the Army and Navy an efficient force of flyers, trained to meet the requirements of each service in event of need. Between the two departments there is the utmost cooperation and consultation, but the needs in types of planes, kinds of duty required, conditions to be met and differences in personnel are so great that the flying corps of the Army and the Navy have come to be separated by as wide a gulf as exists between the infantryman and the sailor.

In the Army Air Service, according to a late assignment, there are 952 officers and 8,936 enlisted men. There are at the present time 27 Army aviation fields, scattered all over the continental limits of the United States, from New York to California and from Maine to Florida. Due to reduction in the Army, however, and to plans for increasing efficiency and centralizing necessary work, 4 of these fields will be closed and 16 will be placed on an inactive status. The remaining fields will be much enlarged and the work of construction greatly extended. Army aviation has operated 10 special training schools for enlisted men to secure the high degree of training necessary among men on whose work depend the lives and safety of all flyers. Five special schools for officers are also planned with three tactical stations and four supply depots.

As aviation is a new and progressive service most of the time of officers and enlisted men, pilots and mechanics, is spent at school. Officers and men are required to study constantly so that they may become experts at all angles of their most scientific profession. Schools are maintained by the Army at McCook Field in which engineering is taught, and where a man may learn more about gas engines than the foreman of the average automobile factory knows. At

Chanute Field, at Rantoul, Ill., photography is taught from the air and on the ground. Graduates become so expert that they can map a country photographically by flying over it, producing maps more accurate and much more clear and graphic than can possibly be taken by the most expert surveyors and draftsmen with transit and level.

Other schools are maintained in pursuit flying, battle exercises, bombing, and other branches of aviation. In addition to airplanes, the Army Air Service maintains a considerable number of small dirigibles and a number of balloons for the purpose of observing artillery fire.

According to a late report there are 595 officers and 4,631 enlisted men in naval aviation. These are engaged principally in the flight of seaplanes and of fast scouting planes such as are employed for battle service in connection with the fleet. The Navy maintains 11 air stations within the continental limits of the United States, as well as extensive air detachments operating with the Atlantic, or Scouting Fleet, and the Pacific, or Battle Fleet. The principal schools of the naval aviation service are concentrated at Pensacola, Fla., where naval pilots are trained in all the minutiae of their work. In addition, large naval air stations are maintained at Hampton Roads, Va.; San Diego, Calif.; and Anacostia, D. C.

In accordance with the organization of the naval air force, large aviation detachments permanently accompany both the Atlantic and Pacific fleets. These are carried on tenders, on aircraft carriers, and on the decks of the battleships themselves. According to the present arrangement the U. S. S. *Wright* is the flagship of the air squadrons of the Scouting Fleet, and the U. S. S. *Aroostook* accompanies the Battle Fleet. The aircraft carrier *Langley*, converted from the collier U. S. S. *Jupiter*, is not included in the total tonnage for aircraft carriers allowed the United States under the Treaty on Limitation of Naval Armament. It is on experimental status, and problems solved on it will be applied

to the two aircraft carriers which are to be made by conversion of the two battle cruisers, the *Saratoga* and the *Lexington*. When completed, these two ships will be nearly a thousand feet long and will carry landing platforms on which any type of land plane can alight in safety. In accordance with plans already put in practice on the *Langley*, pneumatic devices impart to the airplanes initial speed, which, in addition to the speed given them by their propellers, enable them to take off with a run of only a few hundred feet. In landing, special devices are provided which bring planes alighting at 60 miles an hour to a stop within a few feet without jar or injury.

In addition to the airplane carriers, heavy seaplanes for observation and bombing and for messenger service accompany both fleets. Squadrons of planes, each carrying a single torpedo, are also provided. The pilots are instructed to dash as near to the enemy in battle as possible and drop their torpedoes within close striking range, even in the face of certain destruction. The work of such seaplanes would be supplemented by the swarm of planes ranging from the heaviest bombing type to the fastest and tiniest fighters carried by airplane carriers, and by the planes which each battleship carries.

Under the present arrangement, each battleship has one or two planes of the scouting and light observation type. These are carried on a platform and are projected into the air from a catapult, which consists of a track about 50 feet long on which runs a small wheeled car. By means of a pneumatic piston this car is shoved suddenly forward along the track at a velocity of 50 miles an hour, carrying the plane with it. When the car reaches the end of its track, it is stopped by pneumatic buffers, while the plane continues under its own power. By supplying each battleship with such planes provision is made that each ship will have means of plotting the fall of its own shots and correcting them by aerial observation so as to render a high percentage of hits

certain, the information being communicated to the ships by radio.

Between the Army and Navy aviation services comes Marine Corps aviation, with about 100 pilots and 825 enlisted men. They fly both ashore and at sea, and operate both sea and land planes. They maintain a flying station at Quantico, Va., as well as extensive establishments in Haiti, the Dominican Republic, and Guam. In Haiti and the Dominican Republic, marine aviators, in addition to their ordinary duties of a military nature, render service almost invaluable to the Government by transporting mail and passengers to many points in those countries where bad roads render transportation by any other means almost impossible.

Many types of planes are used in the Army, Navy, and Marine services, ranging from the tiny single-seater fighting scout to the huge NC-4 type seaplane and the gigantic Barling bomber of the Army. Of these each is important in its way and each serves a special mission. The most spectacular and speediest are the single-seater fighting planes. The latest development of these are the pursuit planes evolved from the Curtiss and Wright racing planes. These make a speed somewhat less than 200 miles an hour because of military characteristics which must be incorporated. They are equipped with motors so powerful that they can fly almost straight up into the air. With the latest type Curtiss racer, Lieutenant Maughan of the Army Air Service last year made a world's record of more than 206 miles an hour in the Pulitzer races. Since this record was made, Lieutenant Sanderson of the Marine Corps reached the terrific speed of 259.5 miles per hour with the Wright type.

Planes of this type are of small size and narrow wing spread, but of great power. The Curtiss plane has nearly 500 horsepower, while the Wright plane has an engine of more than 750 horsepower. The width of these planes is about 20 feet, and either of them could be easily accommodated

in a fair-sized room. When their motors are started, planes of this type vibrate with terrific speed and force, and the pilots describe riding in such ships as "flying with an engine on your lap." These planes land at a speed of about 90 miles an hour. Both the Army and the Navy possess planes of this type.

The De Haviland 4-B plane is used by the Army for observation and for light bombing. This type carries two men, a pilot and a second man who may be observer, photographer, machine gunner, or all three combined. It is equipped with the Liberty motor, developed during the war, which has given magnificent results and is a general favorite with air-service pilots. It will carry a considerable weight of bombs and attain a safe speed of about 100 miles per hour. Somewhat in the same class in naval aviation is the D-T boat, which is capable of being used to carry either torpedoes or bombs. A ship of this type recently established a world's altitude-weight record when it ascended to an altitude of 12,050 feet, carrying about a ton. The next larger planes are the FL-5 flying boats which will carry a thousand pounds, and the Martin bomber land planes which will carry nearly twice as much. Both these types are equipped with two Liberty motors and come under the head of double-motored planes. Next in size comes the seaplane of the NC-4 type with four Liberty motors and the newly completed Barling Bomber of the Army, which has five Liberty motors and will carry from 2 to 5 tons of bombs, depending upon the increase or decrease in the amount of fuel to be carried. This is the largest airplane that has ever been successfully flown, and in comparison with it any other type appears as a dwarf beside a giant.

In addition to the airplanes with which the Army and Navy aviation services are supplied, each has a number of dirigible balloons and airships. Of these the latest, and by far the most remarkable, is the ZR-1, the huge dirigible airship built in the United States from Zeppelin plans, and

permanently stationed at Lakehurst, N. J. Due to the fact that the Zeppelins were filled with hydrogen gas, highly inflammable and explosive, and were easily burned by incendiary bullets from allied airplanes during the war, this type of airship was considered discredited. American invention, however, discovered the possibility of manufacturing helium, a gas which will not explode and will not burn, and enough has been produced to fill the monster ZR-1 eliminating all danger of fire and explosion. The huge gas bag is 680 feet long and is made of a special fabric stretched on a framework of duralumin, a metal having wonderful properties of lightness and strength. It is propelled by six Packard motors which give it a maximum speed of about 70 miles per hour. It may be equipped as a floating fortress with machine guns at different points on the top which are communicated with by tunnels inside the structure of the airship proper. It has a lifting power of about 65 tons. ZR-1 means Zeppelin Rigid No. 1. Upon its return from its first extended flight this great ship of the air was christened the *Shenandoah*. This name, which means in the picturesque terminology of the original Americans "Daughter of the Stars," was selected by Secretary of the Navy Edwin Denby.

In addition to their strictly military duties, Army and Navy aviators have performed much useful work for the Government that is not of a strictly military nature. The Army Air Service has been engaged in patrolling the western forests, and its work in reporting fires in their incipiency has saved several million dollars' worth of Government timber from destruction. It has cooperated also with the Department of Agriculture in several experiments designed to determine the feasibility of eradicating insect pests by spraying orchards, and of eliminating the boll weevil by distributing poison over the cotton plants from airplanes. The successful use of planes in work of this kind would save the farmers and cotton planters millions of dollars. Experiments have

been carried on for the Weather Bureau in determining temperatures and air currents and atmospheric conditions at varying altitudes. Mail and passengers have been carried by Marine Corps and Navy planes.

A particularly spectacular service is the ambulance service established in Haiti and in the Dominican Republic. Many lives have been saved by planes being able to carry patients from inaccessible points to the large hospitals of Port au Prince and Santo Domingo, covering distances in an hour or two which would have taken days by any other method of transportation.

XII

THE DEPARTMENT OF THE INTERIOR

THE Department of the Interior was created shortly after the Mexican War when large additions in territory and increasing population and wealth in natural resources required the attention of a special Cabinet minister and a staff. The act creating the department was entitled "An act to establish the Home Department," and that is what it is. The Interior Department contains a group of related bureaus and another group of unrelated bureaus, some of which may be transferred when the plan of reorganization of the Government is perfected. The related bureaus concern chiefly the public lands and the natural resources. They are the General Land Office, the Reclamation Service, the Indian Office, the Bureau of Mines, the Geological Survey, the Bureau of Education, and the National Park Service. The unrelated bureaus are the Pension Bureau, the Patent Office, and certain eleemosynary institutions.

First in rank of the bureaus comes the General Land Office. The Government has, since the foundation of the Nation, been its greatest landlord and also has been probably the most bountiful distributor of land to the people in the world's history. Realizing that people, not empty acres, make a country rich and prosperous, it has been the traditional policy of American statesmen to distribute the land freely but equitably to those who desire it. From the time the Government was founded down to the present, 1,835,000,000 acres of land have come into Government ownership. All except 182,000,000 acres has been reserved or distributed to the people and the distribution still is proceeding. In-

cidentally, Uncle Sam has proved a highly successful real estate operator. The entire amount of land which has been purchased by the Government cost an average of only 5 cents an acre. Less than this trifling price was paid for the vast Louisiana Purchase, embracing some of the finest land in the country. It now is worth billions, overspread as it is with farms, forests, mines, and great cities connected by a network of railways.

The usual method of distributing land has been by the granting of homesteads. A settler can obtain 160 acres of public land for the sole consideration of residence and work. He may have it free if he will live upon it. For stock raising purposes he may have 320 acres. The lands are divided in accordance with their fertility and usefulness. Most of the fine land was taken up in the days of the pioneers of the West, but some still remains. The oil lands leasing law provides that a homesteader may obtain the right to cultivate the surface of certain lands for agriculture without having the right to drill for oil or dig for minerals. By this means many square miles which otherwise would be held as mineral reserves have been opened to the production of food.

Other lands were sold to the people for sums ranging from $1 to $4 per acre. A total of 1,259,000,000 acres of the public domain has been placed directly in the hands of individual citizens and the distribution is continuing at the rate of 10,000,000 acres a year. Other grants were made to railroad companies to aid them in building the transcontinental lines which opened up the country and made the lands of the settlers more valuable, thus increasing the national wealth. Of the 48 States of the Union, 24 no longer contain any public land. Of those which do, Nevada has more than any other, with 52,000,000 acres. Kansas has the least with only 2,944 acres. All Government land grants must bear the President's signature and a woman in the General Land Office affixes it. She is the only person authorized to sign the President's name.

Closely associated with the work of the General Land Office is that of the Reclamation Bureau. In 1902 Congress set aside from funds received for public lands the proceeds of all sales in certain western States and Territories to be used for reclamation projects with the exception of a 5 per cent deduction for educational purposes. This was later supplemented by other receipts, notably from royalties under the oil leasing act. The reclamation fund has reached $140,000,000 and so much work has been done that water storage capacity now has reached 10,000,000 acre-feet, or enough water to cover the State of Connecticut 3 feet deep. The stored water is used mainly on the Government projects, but is also sold to private projects needing it. The area in the first category brought under irrigation ditches is approaching 2,000,000 acres and more than 1,000,000 additional acres in the second category share in the development.

Irrigated lands are opened to settlers, each of whom may take up an amount of land, ranging from 20 to 160 acres in extent. The area in each case is that which in the discretion of the Secretary of the Interior is necessary to maintain a family. Settlers form water-users' associations or irrigation districts and contract for the use of water to reimburse the Government for reclaiming the land from the desert. Settlers sometimes pay for water rights by working out the rates in labor on canals and irrigation ditches. The money coming back from one irrigation project is invested in another.

It has been roughly estimated that enough water is available in the West to irrigate 20,000,000 additional acres. At the rate of one person to every two acres this work would provide support for 10,000,000 people where once was arid desert. Of the 100,000,000 acres of irrigated land in the world, one-sixth of it is in the United States, and more than 3,000,000 Americans now are living on such lands.

That irrigation is a profitable enterprise is shown by the experience of the State of Colorado. During a given year the value of its wheat crop was $18.65 per acre as compared

with $12.19 in Wisconsin, $11.22 in Illinois, $9 in Minnesota, and $8.45 in Kansas. Its yield per acre of oats was double that of its nearest rival, Wisconsin. Its barley yield was valued at $19.12 an acre as compared with $13.65 per acre in Wisconsin. Its yield of hay was valued at $19.47 per acre compared with $13.14 per acre for its nearest rival, Wisconsin. Many an acre of irrigated land has been made to yield profits of from $200 to $500 a year. The desert land is extremely fertile; all it requires is water and this the work of the Reclamation Bureau supplies.

Deeds of daring and resourcefulness almost without parallel in history have been performed in perfecting the great scheme of desert redemption, and engineering feats have been accomplished which have astonished the world. Of such deeds the Uncompahgre project in Colorado is an example. In the Valley of the Uncompahgre River lies land of exceptional value, but until the United States took a hand there was no way to water much of it. Flowing parallel to this river is the Gunnison, the route of which lies through a canyon, with a large volume of water and no contiguous land needing it.

These two streams flow 10 miles apart, separated by a mountain 2,000 feet high. It was decided to take the superfluous water from the Gunnison River, divert it into the Uncompahgre, and so make productive thousands of acres in that valley. Then came the men of daring who were to survey the route. Swinging by ropes over precipices, clinging to crevices of rocks, floating down unexplored streams on rubber rafts, and otherwise encountering many dangers, they completed the survey of the tunnel to be cut under the mountain. This tunnel is 6 miles long.

The carrying out of these irrigation projects has entailed the building of 14,500 miles of canals, ditches, and drains—sufficient to reach halfway around the world. Over 27 miles of tunnels have been built; 15,500,000 cubic yards of masonry, rock-fill, and crib dams have been constructed; 9,000 bridges

have been erected, and other construction work includes 597 miles of pipe line, 140 miles of flumes, 1,000 miles of wagon road, 83 miles of railroad, 3,000 miles of telephone lines, 1,100 miles of power transmission lines, and 1,570 buildings, such as offices, dormitories, power stations, pumping plants, barns, and storehouses. Two hundred million cubic yards of rock and earth have been excavated. More than 3,000,000 barrels of cement have been used and, as a by-product of its work, the bureau has manufactured 1,500,000 barrels of sand cement and mined 140,000 tons of coal. Its dams and ditches produce, as another important by-product, 64,000 horsepower. To coordinate governmental activities in this field, Hubert Work, when he became Secretary of the Interior, started the first investigation ever made of the whole system of the Government methods in reclaiming arid and semiarid lands by irrigation.

The Commissioner of Indian Affairs has charge of the Indian tribes of the United States, exclusive of those in Alaska, is the direct guardian of their lands, their moneys and schools, and directs the purchase of their supplies. Alaskan Indians are looked after in the government of that territory. The commissioner is responsible for the general welfare of the Indians, under the general supervision of the Secretary of the Interior who recently named a committee of 100 prominent citizens to work out a new policy for Indian development and protection which, it is hoped, will greatly benefit the Red wards of the Government. There are 225,000 Indians on reservations and under the care of the Indian Office. Others have been given full citizenship rights and are treated as any other Americans.

In recent years the Government has changed its policy toward the Indian. Whereas the relations formerly were with tribes as a whole, a more humanitarian policy has been adopted and attention now is given to the individual, the Government constantly working to develop each Indian to a point of educational and economic attainment where he can

take his place as a full-fledged citizen and be absorbed into the body politic. Under this policy the Indian has thrived. As rapidly as the individual aborigine reaches a given stage of development he is freed from Government guardianship. To alter the characteristics of a race, compelling it to surrender its traditions, its customs, and its impulses, is a matter of generations rather than of years, and the full-blood Indian of to-day still makes a stubborn resistance to the efforts of the Government to transform him into a farmer, with fixed habitation, or to interest him in the trades or other vocations of modern life.

Much of the land set aside for the Indians has proved to be immensely rich in minerals, especially in oil. It has been a part of the policy of the Government to act as conservator of this wealth as long as the Indian is incompetent to handle it wisely, but to give him full possession when he demonstrates his ability to take care of it. The distribution must be carefully supervised, for this is a favorite field for the confidence man and the unscrupulous attorney. Such adventurers have in some cases induced Indians to sign away their rights on trumped up claims for fees. This has been stopped by the Government. As soon as an Indian's property is transferred to him it becomes taxable and the burden of schools and protection passes from the Federal Government.

The principal problems of the Government in its custody and development of this native American are education, protection of health, conserving of property, and fitting of him to be relieved from guardianship by allotment of land. Formerly, the drink evil constituted the outstanding problem. The Red Man was notoriously dangerous under the influence of intoxicants and almost invariably was eager to indulge. The utmost vigilance was necessary in order to keep the white man's "fire water" from the braves. National prohibition has solved this problem to a large degree.

Indians have been allotted lands on 117 reservations,

40,000,000 acres valued at $500,000,000 now being in their possession. This is over half of the total of Indian land. Most Indians now live in houses, but on 20 reservations the tepee still is preferred. Some 26,000 Indians still wear the blanket. Nearly 20,000 Indians are attending schools provided by the Government. Many others go to the ordinary public schools. Five million dollars a year is spent on their education.

American Indians are worth over a billion dollars. In addition to their real estate they have tribal funds of some $25,000,000 and individual bank deposits of $35,000,000. The Osage Nation is the richest, $130,000,000 in oil royalties having been realized from its oil lands. Each member of the tribe has an income of about $11,000 a year from what in 1923 was regarded as the world's richest oil field.

Tuberculosis and trachoma are the principal diseases which prey on the Indian. Some 25,000 Indians suffer from the former and 30,000 from the latter. The Government maintains 150 physicians for the treatment of the Indians and operates 78 hospitals and sanitoriums. Indians have a low insanity rate, there being only one insane person in 2,000.

The Indian is progressing rapidly under Federal tuition. The trials of the officials are becoming fewer. In the old days, scarcely any Indian could write and in signing papers they were required to make their mark and add their thumb prints further to identify the signature. Now many have college diplomas.

The catch phrase "safety first" is one familiar to almost every American and has many applications. This phrase originated with the Bureau of Mines, one of the related bureaus of the Interior Department. This bureau is charged with protecting the safety and guarding the health of miners and with lessening waste and increasing efficiency in this second greatest American industry. The bureau operates mine-rescue cars and train-rescue crews to meet the emergencies of disasters which result from mine cave-ins, fires,

and explosions. The gas masks used in the war were the product of this bureau which uses such masks in mine-rescue work. Breathing devices perfected here are used by city fire departments throughout the country.

The bureau has a wide usefulness. It has developed processes by which it has recovered $1,000,000 worth of radium used in American hospitals, it has shown automobilists how to escape the carbon-monoxide death that lurks in their exhaust tubes, it has demonstrated to railroad companies how to purify the air in tunnels, and has conducted investigations of explosives of inestimable value to the Government and to the public. This bureau enforces the oil lands leasing law which governs production of oil, gas, coal, potash, phosphate, and sodium on 980,000,000 acres of public domain. The bureau has taught millions how to use patent heating devices with safety and how to stoke their furnaces to obtain the greatest heat from coal. It helps conserve the gasoline supply and shows the consumer how to get most miles per gallon. The bureau might be called Uncle Sam's janitor, garage man, and general utility helper.

How important it is to protect the mining industry of the United States is indicated by the fact that 65 per cent of the traffic of the railroads of the country originates in mines and that about 2,000,000 wage earners are constantly engaged in mining operations. Without the products of the mines, the factories would not have been built and the railways never could have been constructed. But the miner has been wasteful in his methods; for example, in some cases, he has taken out as low as 40 per cent of the coal in the mine, leaving all except the most accessible. The difference between the greater cost of thorough mining, as compared with the lesser cost of wasteful mining, often means the difference between profitable and unprofitable operation. One of the tasks assigned to the Bureau of Mines is to attempt to discover methods of operation whereby it will be profitable to take practically all of the coal out of a mine. The coal production

of the country now aggregates more than half a billion tons a year, and it is calculated that the annual waste amounts to a third as much.

In addition to investigating economical methods of mining, the Bureau of Mines is assigned the task of trying to determine the conditions which lead up to mine explosions and the methods of preventing them. It seeks to learn what explosives can be used with least risk in mines where gas or inflammable dust exists, what conditions permit the safe operation of electric equipment in coal mines, what types of mine lamps are safest, and what sort of artificial breathing apparatus is best suited for use in the rescue of victims of mine disasters.

A remarkable advance has been made in this work and mine fatalities have declined appreciably. The mine-rescue cars of the bureau are stationed at strategic points in the mining regions, just as fire engines are stationed about a city. At the first news of a mine explosion, the nearest car is rushed to the scene and well-equipped crews begin the work of rescue. In cooperation with mining companies and labor unions, the bureau has organized contests between volunteer teams at various mines. The keenest rivalry exists among these teams to determine which can bear off the trophy for the most efficient maneuvers, drill, and demonstration of mine-rescue work.

In the prosecution of investigations to ascertain what explosives are least dangerous in coal mining, large, explosion-proof, closed tubes are used, with only such openings as will permit the engineers to watch the experiments. All conditions found in mines are simulated and the explosives on the market are carefully tested under all imaginable kinds of working conditions. The results of these tests are used in making up a list of explosives regarded as safe in mining operations. The list of permissible explosives numbers about 50.

The investigations and educational work in connection

with the use of artificial breathing apparatus and other types of mine-rescue equipment have been useful in developing better and wider uses of such paraphernalia. The gas masks devised by the bureau saved the lives of many soldiers in the war. They are sometimes used by engineers and firemen in long railroad tunnels.

Another related bureau of the Interior Department is the National Park Service. Formerly a branch of the General Land Office, this now is a distinct organization which has custody of the great parks and monuments of the Nation, which have been set aside forever from commercial use and dedicated as the playgrounds and wonder spots for the people. Nineteen tracts of land have been reserved by act of Congress because of their scenic grandeur, and world travelers declare that no foreign country can exhibit regions which excel the American national parks in natural sublimity. There are more geysers in the Yellowstone National Park than in all the rest of the world. No other valley compares in natural beauty with the Yosemite in California. The Grand Canyon of the Colorado eclipses all other natural wonders of its kind, and is rivaled only by the creations of the imagination. The greatest trees in the world were standing in the Sequoia National Park long before the birth of Christ. The Lake of Everlasting Fire in Hawaii can be compared only with the imaginary scenes of Dante's Inferno.

In addition to the parks there are 27 reservations administered by the National Park Service called National Monuments. These are smaller tracts embracing spots of historic and scientific interest. Homes of the cave dwellers and prehistoric ruins are included in these reservations. The parks and monuments constitute the museums of nature and of prehistoric man.

The Federal Power Commission, while not a bureau of the Department of the Interior, has offices in its building and has related functions. The Secretary of the Interior, the Secretary of Agriculture, and the Secretary of War con-

stitute the commission. It administers the natural water-power sites of the country. The rushing rivers of the United States hold tremendous potentialities for the development of hydroelectric power. In order that the sites suitable for power development, such as rapids and waterfalls, may not be bought up by great corporations and held out of use or monopolized, the Government, through this commission, supervises the location and use of water power. Applications to build power dams must be made to this commission which grants permits and licenses.

Somewhat related to the work of these other bureaus is the Alaskan Engineering Commission, having charge of the construction of the Alaska Railway, which is opening up the Matanuska coal fields and other resources of the great northern territory.

The chief of the unrelated bureaus is the Pension Bureau. It originally was placed in this department because the granting of pensions to Civil War soldiers and the granting of lands by the General Land Office were related activities. Now that the veterans either have taken up their land or no longer have need of it, the pensioning function has been declared to belong more properly to the War Department and is likely to be transferred there. In the last decade the number of Civil War pensioners has declined from approximately half a million to about a quarter of a million. Death erases names from the roll at the rate of 40,000 a year. The total number of pensioners of all wars now on the rolls is about 600,000. The annual payments at the beginning of the fiscal year 1922 made on account of pensions had reached the great total of $273,000,000. The average value of each pension is $432. The total amount paid out in pensions up to 1922 was more than $6,500,000,000. Of this, $6,000,000,000 represents Civil War pensions—a part of the price of preserving the Union.

The admitted pension claims in the files of the bureau are so extensive that they fill 27 rooms and weigh more than a

thousand tons. More than three and a half million claims have been filed since the establishment of the pension system. A million and a quarter of these were rejected.

The last Revolutionary War pensioner died April 25, 1911, aged 90. She was Mrs. Phoebe M. Palmeter, of Brookfield, N. Y., the daughter of Jonathan Wooley, who served under George Washington in a New Hampshire company. The last widow pensioner of that war was Esther S. Damon, of Plymouth Union, Vt., who died in 1906, at the age of 92. The last survivor of the Revolutionary War was Daniel F. Bakeman, who died at Freedom, Cattaraugus County, N. Y., in 1869, aged 109 years 6 months and 8 days. Hiram Cronk, of Ava, N. Y., who died in 1905, aged 105 years, was the last survivor of the War of 1812. Only 41 widows of veterans of the War of 1812 were carried on the pension rolls in 1923. The eldest of these is Mahala Huff, Louisa, Ky., who, in 1923, was 104 years old. Her husband was a soldier in a Virginia militia company. Fifty-seven veterans and 1,717 widows of the Mexican War still are on the rolls.

The Bureau of Education, which comes under the Department of the Interior, serves as a national clearing house for educational information. It gathers data with reference to the educational activities of every progressive community, seeking to enable the more backward communities to take advantage of the lessons of progress. If one community makes a marked success of a system of transporting pupils to rural schools, the bureau sends experts to study the details of the plan and then prints a report upon it which is distributed to educators throughout the country so that they may have the benefit of the experience.

The bureau constantly is studying ways of perfecting the educational system and works in cooperation with State and municipal authorities. Specialists gather information relating to standards of collegiate and professional education, the statistics and accounting systems of colleges and universities, cooperation in graduate studies, and opportunities afforded

students in foreign countries. During and since the war the bureau has worked to inculcate in the youth of America, through cooperation with the schools, the highest ideals of Americanism.

In the branch of its work having to do with Alaska, the bureau adds to its duties rudimentary instruction to the Eskimos and the Indians in matters of hygiene, sanitation, agriculture, and similar fundamental knowledge. The bureau has a more personal touch in dealing with these simple folk of the north and frequently aids the destitute. One of the anomalies of Government organization is that the Bureau of Education supervises the Alaskan reindeer industry. Under this supervision, the herds have increased from 22,000 to 2,500,000 in a little more than a decade. A large income is derived for the natives and the industry has become an important part of their economic life. The Commissioner of Education is a member of the Federal Board for Vocational Education, and assists in educating and rehabilitating soldiers of the war and men maimed in industry.

St. Elizabeth's Hospital for the Insane, Howard University of Washington, one of the largest negro institutions in the world, and Freedmen's Hospital, a negro institution, also located in Washington, are under the guardianship of the Interior Department.

The Interior Department has many functions in connection with the government of Alaska. This territory, purchased from Russia in 1867 for $7,200,000, has yielded a return of $1,100,000,000, one of the most profitable investments imaginable. Some $200,000,000 has been spent by the Federal Government in its administration. The population of Alaska is but 60,000 and it is believed that only the surface of the Alaskan wealth has been scraped. The Klondike and the Yukon gold have not been exhausted, and there are also untold millions to be garnered in agriculture, fishing, sealing, and other industries. The Department of the Interior has charge of the Territorial Government, public lands, mining

claims, town sites, manufacturing sites, hot springs, Indian allotments, wharf sites, coal leases, oil leases, the governmental railway, surveys, and the natives. Other functions are performed by other departments.

Services rendered by the Department of the Interior in 1922 have been compared with those rendered in 1902. The analysis shows that in 20 years the patent business of the Government increased 50 per cent and the trade-mark business 100 per cent, though the Patent Office was given only a 7 per cent increase in its force to do the work. Progress in Indian affairs is indicated by the facts that the value of Indian livestock grew in two decades from $8,000,000 to $30,000,000, and the value of Indian crops rose from $1,000,000 to $11,000,000. In the same period the National Park system was expanded from 8 parks to 19, and the annual number of visitors to the parks increased from 120,000 to more than a million. While the demands of the people on most Government bureaus tend to grow heavier, the people who are served by the Pension Office are diminishing in number. This is one Government bureau which measures the advance of the years by the closed-out pension records of old soldiers who no longer ask anything of Uncle Sam.

XIII

THE GEOLOGICAL SURVEY

AMONG the most adventurous and romantic of the peace-time rôles of Uncle Sam is that enacted through the Geological Survey. Here he becomes a prospector for minerals with a pick on his shoulder and a wealth of scientific lore in his mind. He scours mountain and desert seeking gold deposits which will stabilize his currency and adorn his arts, the ores of iron to build his railroads, the copper with which to equip his electrical machinery, and the countless other minerals on which American industry rests. The survey aids in locating the natural riches of the surface of the land and what lies beneath it. It is alert constantly to find new treasures and vigilant to conserve those already discovered.

Geology is the science of the composition of the earth and this branch of the Government is charged with the duty of exploring and safeguarding that section of it which belongs to the American people. Schooled in the story the ages have written in the rocks and sands and waters, the experts are able to determine, with a high percentage of accuracy, what manner of minerals are likely to be found in a given territory. It is known that if rock formations of a certain geologic age lie in one section, in that section also is likely to be a hoard of gold. If sands of a known type are found in another place, that place is fairly certain to harbor petroleum. So with iron ore, copper, silver, zinc, lead, potash, phosphates, and all the long list of precious and valuable metals and minerals. The survey explores every wilderness and charts every settled expanse. By providing this scientific

guidance it saves the commercial prospector from aimlessly blundering about and leaving largely to chance the finding of the underground treasures which will add to the Nation's riches.

The survey's headquarters is in the Department of the Interior Building at Washington, but its most fascinating work is done in the field. Constantly parties are out in the wide spaces of the West and elsewhere on American territory, prosecuting their never-ending search. Their boats are familiar to the herds of seal and the Eskimos in the waters of Alaska, and the Rocky Mountain goat sees them traversing the passes of the highest ranges. Careless of hardship and danger, these surveying parties range the national domain and scarcely a day passes that some valuable information is not added to the store of knowledge about what the country holds. A series of reports, emanating from the Washington headquarters, announce the discoveries made to the public and on these the miners and prospectors base their own exploring activities. These data enable them to narrow down their searches and millions of dollars have been saved to the American people by this guidance.

Among the notable discoveries are those of petroleum deposits, especially in the great Mid-Continent Field. Survey parties have discovered pools and whole fields of petroleum which the private prospectors and wildcatters had missed. When word gets out of the discovery of a new oil region a great rush starts. In the old days there was a great amount of speculation and some shrewd practices. By hook or crook, the oil men sought to get possession of the oil lands. Now the oil lands leasing act is in effect and the taking up of oil leases is a much more orderly process, but no less romantic and exciting. When an oil field is discovered on the public domain, the Department of the Interior arranges an auction of the lease rights. The oil men congregate at a given place and date to submit bids. They offer a large initial bonus for the right to drill. The successful bidder then must pay

a royalty to the Government on the amount of oil produced. Sometimes royalties are paid in cash, sometimes in oil. If in oil, a large portion is used for the United States Navy. There are entire reservations of oil lands set aside to insure a future supply of fuel oil and gasoline for the Navy.

When it became necessary to move the Indians of the South into a restricted territory, broad acres were selected for the purpose in what is now Oklahoma. At the time these lands were regarded as merely wide, open spaces of the sort the Indian prefers. In recent years these same lands were discovered to contain some of the richest deposits of oil in the whole country. The Government did not prove an "Indian giver" by taking back these rich lands. Arrangements were made whereby they could be leased to oil companies. As a result many Indians are rich. The lands of the Osage tribes are among the richest and oil royalties accruing to these Indians have been so large that each member of the tribe has an income averaging between $10,000 and $15,000 a year. Some are millionaires.

The knowledge of the value of rich metals is so instinctive in the human mind that nearly everyone who in the course of a walk finds a stone which gives back bright glints to the sun, or reveals peculiar coloring, is convinced that he has found gold or some other valuable mineral. The result is that thousands of specimens of rock annually are sent into the survey for examination. These go to one general expert, primarily, who can determine at a glance the nature of most of the samples. Nine out of every ten either are not especially valuable or are entirely worthless. Those concerning which the initial examiner has any doubt are referred to specialists. If a specimen bears the appearance of copper or cinnabar, of lead or magnesite, it will be sent to a geologist who has specialized in the study of that particular mineral.

Just as a man who is building a factory for intensive use desires an exact plan of the construction of his workshop, so it is desirable that the American people have a thorough plan of

their country, which is their workshop. A most interesting activity is the production of two such maps, one topographic and the other geologic. The geologic map is the biggest in the world. It would cover a sheet of paper an acre in extent if it were practicable to print it on one sheet. It is printed on separate sheets which are bound together in a series with a descriptive text. This gigantic map is made on a scale of approximately 1 mile to the inch. When it is realized that the ordinary geography or atlas map is on a scale of from 300 to 500 miles to the inch, it is seen how great a chart this will be when it is finally completed. Work upon it has been going forward for 40 years and yet only a fraction of the United States has been covered fully. To map the geology of a region, the geological surveyor must determine the character and distribution of the individual rock masses and their relation to one another. He must travel over the whole area and plat all outcroppings of rock. The dips of the rocks must be measured to determine the extent of the deformation they have undergone, and other most particular studies must be made, such as the presence of underground water or of oil and gas.

Of parallel importance is a similar huge topographic map. A separate division of the survey makes this. Topography is the science of the actual surface of the earth, rather than what lies below. Mountain, valley, and stream are shown on the topographic map in minute detail. Every hillock, rivulet, and physical characteristic is indicated. Even the locations of buildings and other works of man are shown. Over 40 per cent of the country has been so mapped. Aside from its value as a base for the geologic work, the topographic map has come to have a high value as a groundwork for all engineering, such as railroad and highway construction, bridge building, and the location of other edifices. It is the one great authority on the surface of the United States. The map is projected on a scale of 1 mile to the inch in the more thickly settled regions of the United States, approxi-

mately 2 miles in other sections, and 4 miles to the inch in Alaska. This also is published in separate sheets which will number between 6,000 and 7,000. A surveying party is able to cover from 200 to 500 square miles in a season in making this map and the cost of the work ranges from $15 to $50 a square mile, according to the refinement of the work and the nature of the country.

To the layman the skill of the experts of the survey would seem like magic. Their science has developed so far that they can, in general terms, forecast the occurrence of earthquakes. They will not attempt to forecast the precise time of occurrence, but they do know in what parts of the world the shocks may be expected. An earthquake usually is caused by the slipping of a part of the earth. The slip may be only the fraction of an inch, but that is sufficient to cause a whole countryside to quake and tremble.

A knowledge of fossil remains of plants, birds, animals, and fish often is of great assistance to the geologist in locating various mineral deposits. For instance, there is a particular fossil which is of the same geologic age as certain coal deposits. When the geologist discovers one of these fossils he has reason to suspect the nearby presence of coal. The geologist is able to tell how old a given portion of the earth's structure is. As a horse trader looks at a horse's teeth, as a timberman examines the rings on a tree stump, so the geologist scrutinizes the rock and sand formations to determine the age of a region. Minerals are of certain ages. The finding of rock of a certain age or type may be a clue to the possible presence of gold. Minerals are chemical compounds but their origin has been connected with the physical stresses resulting from the slow, ponderous development of the whole great mass. One sort of geologic structure and resultant rock type is more commonly associated with iron deposits, another gold, still another diamonds.

Prospecting and mapping greatly enhance the value of the land covered. Some lands are found to be of little worth,

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but the definite knowledge of the value of others raises the average. The survey has increased the value of thousands of acres from $20 to $800 per acre. The cost to the Government in the survey of coal lands, for instance, has been but 10 cents an acre. The Government still retains some 70,000,000 acres of coal lands. Under the old coal law all such lands within 15 miles of a railroad were sold at not less than $20 an acre and all more than 15 miles away at not less than $10 an acre. A new order of things now prevails. The Government geologist goes upon these coal lands, locates an outcropping bed of coal, measures its thickness at many points, studies its altitude, determines its faults, and passes on its quality. A board of geologists then calculates the amount of coal on each 40 acres, plats it on the official maps, and computes the value of the coal in the ground, fixing the land value accordingly. But these coal lands no longer are sold outright. Congress, at the instance of Director George Otis Smith, recently passed a mineral leasing act providing that Government coal, oil, phosphate, and certain other lands no longer may be disposed of to private monopolies, but must remain forever in Government ownership, to be leased to those desiring to develop them. After certain deductions are made the royalties received are turned into the Reclamation Fund to be used in the subjugation of the deserts of the West.

Estimates made show that there are over three and a half trillion net tons of coal still unmined in the United States and over five billion tons of easily available coal, perhaps half of which is to be found in lands still under Government ownership and control.

One of the prospecting activities of the Geological Survey is that of determining the location and extent of the phosphate and potash beds of the country. Phosphate is essential to the plant life which constitutes the prime source of our food supply. As food, raiment, and water are the three essentials of human welfare, so nitrogen, potash, and

phosphoric acid are the basic essentials of plant growth. Potash exists in the rocks in unlimited quantities, awaiting only the perfection of a cheap method of extraction to supply every need.

Records of the daily flow of streams have been collected at thousands of points throughout the United States by the survey and 1,500 stations for stream measurement are maintained. Studies have been made of the mean flow of streams, their flood stages, their low-water marks and all other essential data which will serve the developers of power, the irrigationists, and the deep waterway diggers.

The survey is often put to a severe test in its efforts to measure correctly the flow of a river. Many unusual contrivances have been devised to measure the depth and velocity of a river at a given point. A hundred activities depend upon such tests. The Government is spending $140,000,000 on irrigation projects and is expecting to get back three times as much in national wealth. The investigations of basic water resources are essential to the success of this work. It is as important that the irrigator know the water flow on which he bases his project as it is that the architect know the character of the foundation upon which he rears his skyscraper. The same may be said of water power development which is dependent upon this basic information. No river and harbor improvement program can be carried out successfully without details as to silt deposits, stream flow, and low-water marks. The survey has been making these investigations for more than 30 years.

An important study recently completed was a special survey of what is known as the Super-Power Zone, including an area from Washington, D. C., to Boston, where exists the greatest congestion in manufacturing and transportation. The plan evolved calls for the pooling of power, both hydroelectric and steam. If put into practice, it would effect an enormous saving of coal and greatly facilitate transportation. The study involved an intensive examination of all

coal and water power resources within this territory. Indeed, the whole country has been explored in a general way and water power sites located. These are conserved for the public use under a Federal water power law under which sites are licensed to private companies.

The survey's work in connection with water has many ramifications. Just as it looks for solid minerals beneath the surface of the earth, so also it seeks out the presence of artesian water. This water is found sometimes in desert places, by drilling far below the surface. Sometimes it spouts up with the energy of a geyser, making life and production possible in what otherwise would be desolate regions. A find of artesian water may be almost as important as the discovery of a gold lode. Many different types of mineral waters, some having high medicinal value, are to be found in the United States. These are sought by the survey and analyzed.

The survey is in touch with every mine operator and mineral producer in the United States. It issues an annual encyclopedia of American mineral production, embracing the output, utilization, exports, and imports of some 200 useful metals and minerals. These statistics of mineral production are the most complete and accurate in the world. Less than half a century old, the Geological Survey was started with an appropriation of only $100,000, its main purpose being to gather data and study fundamental problems with reference to the geology of the public domain. Since then it has extended its work in many directions. But it has not yet discovered the philosopher's stone which the alchemists of the Dark Ages believed would transmute any base metal into gold at a touch, nor has it perfected a divining rod.

XIV

THE PATENT OFFICE

ALTHOUGH the patent-right system had its inception in England it has rendered the greatest service to the people of the United States. The life of the founders of the American nation inspired ingenuity with the result that those pioneers and their posterity have shown the most prolific inventive genius in the world. Of all the patents that the civilized nations have issued, nearly one-half, or 1,462,000, have been issued by the United States Patent Office.

With remarkable foresight, the framers of the Constitution inserted a clause in that document which went far toward the encouragement of inventive genius among Americans. It was a clause insuring to inventors exclusive ownership of their patent rights for a term of years.

The genius of invention came with the western empire builders to Jamestown and Cape Cod. In subsequent years it was stimulated by the hard life of the wilderness. As early as 1641 the colony of Massachusetts granted Samuel Winslow a patent for a new method of making salt. In 1646 a patent was granted to Joseph Jenks for "an engine for the more speedy cutting of grass." This "engine" was nothing more than an improvement on the old-fashioned mowing scythe, but it was the first of a long line of American agricultural implements and machines which have revolutionized the farming industry of the whole world. As new machines are invented and patented, their use begets a new progeny of invention. The cotton gin was followed by many improvements. The reaper and binder, threshing machine, type-

writer, and adding machine were each the precursor of a whole new cycle of inventions.

Acting on the authority of the constitutional clause, the first Congress passed a law creating a Patent Commission composed of the Secretary of State, the Secretary of War, and the Attorney General. Three months elapsed before the first applicant for a patent appeared. Samuel Hopkins was granted a patent July 31, 1790, on a new process for making pot and pearl ashes. Three years later the Secretary of State became the head of the patent system. Since that time American inventions have led the world in number. Last year over 40,000 patents were granted and more than 13,000 trade-marks registered. The fees collected were over $3,000,000. It has been necessary to surround the law with many safeguards to prevent the overlapping and duplicating of patented ideas. Therefore, not all applications result in the issuance of patents. It may be discovered that the principle of a new invention has been patented already and the application must be refused unless there is some radical difference which makes the invention new, novel, and useful—the general rule for everything patentable.

The patents issued cover the entire range of human ingenuity. Each decade brings some epoch-making basic invention, which in turn brings others in its train. The invention of the automobile has probably produced the greatest number of collateral inventions. Aside from the many new features which have been added to the automobile engine itself, to bearings and other mechanical equipment, there have been thousands of accessories and attachments—useful, whimsical, ornamental, and luxurious. From the old rubber-bulb horn came the present mechanical siren. All the locking devices for cars and tires, lights, wind guards, shield wipers, mirrors to show who approaches from behind, foot warmers, hand warmers, bumpers, snubbers, ornamental radiator caps would not have been invented had not the automobile first been produced. The accessory business is now a great in-

dustry in itself. Thus wealth is produced in a nation, while the patent right gives the individual inventor a reasonable prior right to the enjoyment of the profits of his ingenuity.

The era of aircraft started another cycle of this sort and devices constantly are being patented for use on airplanes and dirigible balloons. The latest cycle is that which has sprung up in the wake of the invention of the radio. All manner of devices are constantly being invented to improve communication.

Indirectly the development of American inventive genius has been due to the fostering care of the Patent Office. It has been estimated by economists that two-thirds of the national wealth is the product of inventions. Great industries have been called into existence under the patent system and have given employment to millions of people, paying them wages and salaries running into the billions. The electrical industry is perhaps the best example. In approximately half a century the activities of inventors in the electrical field have resulted in the filing of patents which have built up an industry with a total investment not far short of $10,000,000,000.

There are 50 general divisions in the Patent Office under which applications for patents embracing all the known arts are made. These general classes are each divided into subclasses and there are many thousands of subjects upon which patents are issued. Every applicant for a patent pays a stated fee of $40. This, with the other receipts of the Patent Office, has created a net surplus of over $8,500,000. In spite of the vast benefit conferred upon the Nation by inventors, they have been taxed $8,500,000 more than it has cost to maintain the American patent system.

A great celebration was held in the city of Washington in 1891 in honor of the first centennial of American patent history. Four hundred and fifty thousand patents had been issued up to that time. Statesmen, inventors, and publicists were enthusiastic in boasting of the achievements of the

century. Since that time only 32 years have passed, yet in these years more patents have been granted than in the full century before. In 1891 Congress made an investigation of the wage problem which showed that the average mechanic was then getting twice as much pay as his predecessor in 1840. By the outbreak of the great war this wage scale had again doubled. Now it has redoubled.

This is a consideration of special interest because formerly labor was violently opposed to the introduction of labor-saving machinery. While in this country the opposition did not take such a flagrant form, the introduction of such machinery in England, much of it based on American patents, caused general riots in centers of working population. The workmen argued that when a machine was invented that would enable one man to do the work of ten, that machine would put nine men out of work and keep wages down. The contrary has been the case. More workmen have found employment than ever before at wages which have multiplied with the advance of patented machines. At the same time the labor-saving machinery gives the working man the goods he requires for his own use at relatively lower cost.

More patents have been issued for inventions relating to transportation than in any other line of human activity. These inventions have resulted in a great saving to the people and have made possible a civilization which could never have come into existence but for them. In the early history of the country it was no unusual thing to pay from 20 to 30 cents per ton per mile for the transportation of freight. To-day the average ton-mile railway cost is a little more than 1 cent.

In no other realm have the labors of the American inventor and the fostering care of the Patent Office served a better purpose than in the development of the apparatus with which the farmer produces the things that men eat and the raw material from which they make their clothing. Without the farm machinery which the United States has given to the world, mankind would still be a race of small farmers. No

great cities would exist as they do now and a thousand arts and sciences would be unknown.

The development of agricultural machinery has so enhanced the productive power of the individual farmer that more than three-fourths of those who formerly obtained their living by tilling the soil may now find profitable employment in other vocations. According to authentic statistics it cost an average of $4.95 an acre to reap wheat with the old-time sickle. The invention of the grain cradle reduced this cost to $2.60 an acre. The big steam harvester threshers have lowered this cost to 50 cents an acre. This latter figure is subject to fluctuations based upon the wages of farm hands, but on a statistically comparative basis with the former costs, it is correct and reflects the advance.

What the American inventor has done for farming is partially responsible for the tremendous migration from the farms to the cities. Less labor and fewer men are required on the farms. Nearly all agricultural production is of a sort which perishes with its use. The man relieved from the production of perishable farm products by the intervention of the inventor of labor-saving devices, now may devote his efforts to the production of more lasting works.

When the Chicago World's Fair was held a delegation of foreign agriculturists was taken to a big Dakota ranch and shown how American wheat may be harvested at a smaller cost per bushel than the mere cost of food of slave labor under old-time conditions.

It is estimated that if the world's crop of wheat were harvested without the aid of modern machinery of American invention the annual additional expense would be half a billion dollars. More than 50,000 patents have been issued upon inventions relating to agriculture by the American Patent Office, and the present day value of farm machinery and tools in the United States aggregates three and a half billions. With these, the American farmer has been able to make his property holdings worth $80,000,000,000. During

the war years, his annual gross income reached a peak of $25,000,000,000, a sum equal to the national debt, and even after the postwar readjustment his gross income was nearly $15,000,000,000.

Unquestionably the development of mechanical devices for agricultural use is in its infancy. The time will come, in the opinion of experts, when a horse will be as rare on the farm as in the city streets. Fewer and fewer men will be required to produce farm products and they will work but a few months of the year. The use of alcohol as a fuel for motive power is being developed and alcohol is so natural and available a substance that devices will be perfected whereby the farmer, by utilization of vegetable products, some of which now are regarded largely as waste, will be able to produce his own fuel. The peak of horse population in the United States was passed about 1918 and to-day there are fewer horses in the country than there were a decade ago. The tractor and other mechanical farm implements are largely responsible for this. The annual saving in the amount of food which must be raised amounts to 100,000,000 tons of hay and grass, with grain in proportion. This, in itself, lightens the task of the farmer.

A long step forward was made when the Government, during the great war, produced nitrogen from the air. This is an almost indispensable land fertilizer. This process is being perfected to make production economical. The product will make four blades of grass where one grew before. While development of the process is well started, yet it is expensive. The inventor who can simplify it and bring down the cost will make the United States easily able to support 300,000,000 people with as much ease as it now supports a third of that number.

It is only 70 years since manufacturing became one of the national activities of the United States, largely under the stimulus of the patent system. Since that time the value of our manufactures has increased to the colossal sum of

$50,000,000,000 annually, many times what it was. The multiplication has included the wages and number of factory workers. Under conditions prevailing before the introduction of the labor-saving machinery of this epoch, statisticians estimate that 100,000,000 people would have been required to do the work now done by 5,000,000.

The inventor of machinery for the factory has performed a signal service to humanity. He has proved himself wonderfully versatile. He has devised a large hydraulic forge capable of exerting a pressure of 15,000 tons, and he has made a machine which will cut a screw thread with 260 turns to the inch. He has invented cranes that lift a railroad locomotive as a child lifts a toy, and he has invented a scale which notes the difference in weight of a piece of paper as big as a postage stamp and the same piece after a dot has been marked on it with a pencil. One of his machines will produce a cable many inches in diameter and capable of supporting a suspension bridge, and another will make wire one-tenth the diameter of a woman's hair. One machine will weave an iron netting so heavy that it will serve as the front of a tiger's cage or to stop the movement of a torpedo or a submarine, and another, a steel gauze so fine that it has 40,000 meshes to the square inch. One inventor has produced a machine which will make slices so thin that thousands may be piled up in a layer only an inch high, while another has produced a steel saw so strong that it will cut through the hardest metal as a knife cuts a slice of bread. By virtue of the machines and processes that have been patented in the United States a manufacturer can take a piece of iron and transform it into a giant boiler, into hairsprings for watches worth 13 times their weight in gold, or into watch screws so small that 100,000 may be put into a thimble. One of the most striking examples of labor saving through patented machinery is found in mechanical shoe making. This is one of the oldest of the arts and after centuries of development of the cobblers' skill it required two days to

produce a pair of shoes. To-day that pair may be made in 20 minutes, 60 operatives and 45 different machines being utilized in the process.

It requires billions of boxes to carry the fruit and berries of the country to the urban consumer. The same ingenuity that has made it possible for the American inventor to produce a bit that will bore a square hole has enabled him to evolve a machine which turns out completed boxes. One girl and a box-making machine will turn out 12,000 berry baskets or 4,000 grape baskets a day.

The genius of the inventor brings hundreds of comforts to the poor which could not even be enjoyed by the rich before the rise of the American patent system. A century ago, workers in many lines worked six months for the wage now received for a day's skilled labor. A little more than a century ago the activities of half of the civilized world were entirely absorbed in providing clothing for the people. The sewing machine, the cotton gin, and a thousand other American inventions have emancipated millions from this labor.

Although many marvelous inventions are included in the files of the Patent Office it is generally believed by patent authorities that the years to come will far surpass those that are gone. As the natural resources of wood, coal, gas, and oil show signs of exhaustion, the thought of inventors turns to other fuels. What is sought in most discoveries is energy. Scientists believe we are just skirting the fringe of a vast new world of undiscovered energy. Whether it will be drawn from free energy in the air, from a process of reversing the force of the atom, from electricity or whence, is a matter of conjecture. Whatever form the new discovery takes, it probably will make the most modern steam engine seem antiquated.

Another potentiality is the solar engine, a device on which inventors already have spent much effort with some measure of success. It needs only cloudless skies for its successful operation. There are vast stretches of land to which no use

is put. They lie bare to the rays of the sun. It has been estimated that these regions could generate billions of horsepower. Enough sun falls unused on the bare spaces of the earth in the course of a day to turn every wheel in the world, if harnessed. These scorching sun rays could be utilized to cool men's houses by generating the power with which to run refrigerating plants. Factories could be operated and irrigation plants capable of making the wilderness blossom like the rose could be run with this invisible power. This type of power as yet lies practically dormant, as the manner of economically harnessing it has not yet been devised, but the American inventor holds forth the best promise of fulfilling this potentiality.

The harnessing of the tides and the force of sea waves constitutes another power problem on which inventors are at work. They continue their efforts because they know that the protective function of the Patent Office will insure them the right to use or dispose of their inventions.

It doubtless is true that some valuable inventions do not come into general use and do not make fortunes for the inventors because of lack of capital for development at the hands of the original inventor. This doubtless is true in some cases, but in others the inventor himself obtains an ample monetary reward and even in cases where he transfers his rights and puts money into the pockets of others, he still obtains the fame attaching to the invention. Eli Whitney made little out of the cotton gin, but posterity connects that great invention with his name. On the other hand, Edison and Marconi are examples of inventors who have had both fame and fortune.

A surprisingly large number of patents belong to corporations. When a workman in a factory discovers an improvement for the machine he tends, the employing company often makes an arrangement with him to assign his patent to the company. Sometimes he is paid a lump sum and in other cases is given a royalty. The company takes all the

responsibility for exploiting the invention. It is stated that some companies buy the patent rights to processes and devices and suppress them because their exploitation and use would impair enormous investments in plants and render machinery obsolete. Sooner or later, however, the demands of progress bring the new invention into use. Few inventions of real value can remain covered up. Some large concerns maintain staffs of inventors, employed on salaries to study constantly ways of improving processes and machinery especially adapted to the work of the company. In such cases the inventor understands that he is employed as such and draws his salary in the lean periods in which he makes no invention as well as when he hits upon a valuable discovery. Accordingly all the profits of any invention he may make go to the employing company since the company is gambling on the chance of the man's making an important and valuable discovery, while he is exchanging that uncertain chance for the sure thing of a salary. The business world considers this a fair arrangement.

If the records of the Patent Office could reveal all of the comedy and tragedy they contain, they would furnish a fascinating chapter in the story of the activities of the American Government. Thousands of men and women have pursued that will-o'-the-wisp of invention—perpetual motion. For a thousand years human beings have sought a mechanical system which, once started, would continue to operate without the further application of power. Books have been written on the history of attempts to produce perpetual motion. It is almost as old a search as the quest of the philosopher's stone that transmutes all metals it touches into gold or the fountain of youth that brings eternal life. Many of the seekers, at last realizing that their long quest has been in vain, have committed suicide, other hundreds have wrestled with the problem until their mental faculties have collapsed under the strain. Nearly all carry to the grave the conviction that they have almost discovered the prin-

ciple, while some are certain that they have done so already but can not get others to understand. The Patent Office tells every applicant for a patent on a perpetual motion machine that he must produce a working model. No such model is possible and often the inventor departs with the impression that the Government is unreasonable in demanding a working model to demonstrate his theory.

The ingenuity of those who have tried to invent perpetual motion is worthy of a more attainable object. There are many theories employing the use of water. They usually send water over a wheel and the power generated by the wheel is supposed to lift up the water which has gone down and send it over again to turn the wheel once more. The inexorable fact is that the wheel will not lift more than the weight of water that passes over it. Friction, in addition, must be overcome. Sooner or later the wheel must stop. A device with balls and radiating spokes of a wheel has been used. As the wheel turns, the balls, resting against the center or hub of the wheel, fall by gravity to the rim, their weight turning the wheel. But they must be lifted up on the other side and this can not be done by gravity. It doesn't work.

Some extremely strange devices have been patented or offered as patentable. Many such are technically patentable but of little or very fantastic use. Devices for finding keyholes in the dark and to enable people buried alive to signal to those above ground are among them. Another curious one is a device to prevent train collisions. Before the train are trucks, fitted with rails laid on runways leading down to the railroad tracks. Over the train itself is a platform, somewhat resembling an elevated railway. When two fast trains meet on a track, one is supposed to run up over the top of the other. One can not help wondering what would happen if the colliding trains were both equipped with this contrivance.

The flood of applications in recent years came so rapidly that the Patent Office fell behind in its work, but, with the aid of helpful legislation, Thomas E. Robertson, as Com-

missioner of Patents, speedily reduced the congestion. It is probable that in the early future the Government will undertake the erection of a new Patent Office building. The patent records, representing the ingenuity of a century and worth millions of dollars to the American people, now are housed in such a way that fire breaking out in the building probably would end in almost total loss of these invaluable documents. Many years ago there was such a fire and at that time thousands of models of great historic interest were destroyed. Every precaution is taken, but the best precaution would be a modern building containing fireproof devices for filing the records.

It required 120 years for the Patent Office to issue its first million patents, the millionth one having been issued on August 8, 1911. At the rate patents are being issued to-day, the next million will be granted in less than 10 years.

XV

THE DEPARTMENT OF AGRICULTURE

THE Department of Agriculture is essentially the farmer's branch of the Federal Government, for much of its work in years past has been devoted to finding new and better methods of producing crops, to developing improved plants and livestock, to working out measures for protecting crops from diseases and pests, and to similar problems. But to-day greater effort is being directed to the business side of farming. This does not mean that production problems are being neglected, but that the department's work does not cease when the farmer's crop is raised. There are problems of marketing, distribution, crop estimating, transportation, production costs, domestic demand, foreign demand and competition, which must receive attention. In fact, the work of the department has broadened to include an interest in farm products from the time they are planted until they reach the consumer's table. Special stress has been placed on these various economic phases since Secretary H. C. Wallace came to the department.

Broadly speaking, the department's activities are divided into three divisions, each supervised by a director who is responsible to the Secretary of Agriculture. The Director of Scientific Work supervises and coordinates all research and experimental activities. The Director of Extension Work has charge of the sending out of new agricultural facts to the farmer through agents and in cooperation with agricultural colleges. The Director of Regulatory Work has charge of supervising the administration and enforcement of laws.

The department had its origin in the farsighted wisdom of George Washington who, in 1793, wanted Congress to do something about establishing a department to promote agriculture. Congress never actually got to the point of establishing a Department of Agriculture until 1862, although in an unorganized way the work dates back practically to the beginning of the Government. In that early day most of the work fell upon the shoulders of a single individual, the Commissioner. In a general way its present magnitude can be indicated by the mere statement that nearly 20,000 people are employed. Of this number, 4,000 are in Washington, while the remainder are in the field, manning the branch offices in the different States and cities, traveling in this and foreign countries, and carrying the message of the Government direct to the farmer.

Specialists of the Bureau of Plant Industry investigate the causes of plant diseases and find methods by which they may be controlled or eradicated. For instance, there are the investigations which have resulted in almost the complete eradication of the destructive citrus canker disease in the Gulf States where an investment of $400,000,000 was menaced. Then there is the development of practical methods of controlling the white pine blister rust, thus preserving a $200,000,000 asset; and the vigorous cooperative campaign to eradicate the barberry bush which spreads black stem rust of wheat. In some years this disease has taken a toll of 200,000,000 bushels from the wheat crop.

Millions of dollars have been saved the farmers in the campaigns to eradicate or control plant pests. A large number of major plant insects have come into this country from abroad and they do untold damage each year. Among these could be mentioned the gypsy moth, European corn borer, the boll weevil, and the Japanese beetle. The plant quarantine laws now make it possible to see that these undesirables are kept out, and not a single major pest has been brought in since the passage of the laws.

The avocado is a delicious fruit, but its entry from Mexico and Central American countries is prohibited. This means that the inspectors on the border must be on the alert. In one case the avocadoes were placed in the center of loaves of bread in hope of getting by the inspectors. In another case an innocent passenger from Brazil had a box containing orchids, various tree seeds, and fifty-odd packages of cotton seed. He had planned to take them to his home in Mississippi. The cotton seed was found infested with the pink bollworm and was destroyed.

The bureau sends its men to foreign countries for new types of plants which appear promising for cultivation in different parts of this country. For 25 years plant explorers have been combing all regions of the earth for new and useful plants. These plants and seeds, totaling nearly 60,000 shipments, have come from almost every place geographies mention. Some of them have been found adapted to entire regions in this country and have changed wildernesses and barren wastes into thriving agricultural areas, thus millions of dollars have been added to farmers' incomes. One of the first successful introductions was durum wheat. This variety now has an annual average production of 40,000,000 bushels worth approximately $50,000,000. As a result of the department's work the Peruvian alfalfa is the most important variety in California. It produces from 1 to 2 tons more hay to the acre than former varieties and the annual money value of the crop stands at $5,000,000. The now famous Pima cotton was developed from Egyptian varieties. It has given the Salt River Valley of Arizona a crop valued in 1922 at $6,000,000. Sudan grass, an alien from Africa, has become one of our leading forage crops with an annual valuation of over $2,000,000. In this case it is hard to believe that such an enormous increase could be obtained in a few years from a start of only 8 ounces of seed, but practically all of the crop may be traced to a package of that size.

American orchards and groves have been enriched by the

addition of scores of new fruits and nuts. Chief among these is the Washington navel orange which has become so popular with the American consumer. The department brought this much desired fruit from Brazil. There were less than 20 trees in the original shipment and only a few of them lived. Of the original shipment one tree is still growing in the greenhouse of the department in Washington where great efforts have been made to keep it alive. Another one of the original trees is growing in California. This orange constitutes the larger part of the orange industry of California with an average annual production running over 8,000,000 boxes. The date industry is a new one in this country. Another million-dollar baby industry is the avocado or alligator pear.

Some of the most conspicuous new plants have an annual value of nearly $100,000,000. It is impossible even to approximate how these and other importations may change the fabric of agriculture in this country. There is the yang-tal, a fruit said to combine the flavors of the gooseberry, strawberry, pineapple, guava, and rhubarb. There has been introduced from New Zealand a corkwood tree producing cork one-half the weight of the ordinary kind; a wild rice from West Africa which may be used for marsh pasture; a citrus fruit from India with a concentrated peach flavor; from Yucatan a dooryard tree which is ornamental and the leaves of which provide delicious greens; and an Australian elephant grass which yields 30 tons of hay to the acre, an unheard of yield in this country.

One of the explorers who bring these new plants and seeds to this country has had years of adventures and difficulties in many parts of the world, mostly in Central and South America. He has been shot at from ambush several times, robbed four or five times by bandits, and arrested and jailed seven times. He has been charged with being a spy, robber, and revolutionist. But the worst features of these explorations are disease and bad food.

The Bureau of Animal Industry performs veterinary and experimental work for the improvement of the country's livestock industry, including dairying and poultry raising, enforces the laws passed by Congress to control and eradicate animal diseases and parasites, and maintains quarantine stations where animals from foreign countries are inspected to prevent the introduction of diseases and livestock pests. As you buy meat from the butcher shop perhaps you have noticed the little purple stamp upon it. This is a Government stamp and is your guarantee that the meat is wholesome and fit for human consumption. Inspectors at nearly 1,000 meat-packing plants inspect closely all meat animals before they are slaughtered and the product before it passes into the channels of trade.

While this bureau has many routine activities, including the improvement of livestock by encouraging the use of purebred animals, it also has a long list of singular accomplishments to its credit. Veterinarians of the bureau discovered that the small tick so often found on cattle was responsible for transmitting Texas fever from one animal to another. By the isolation of the tick as a factor in spreading fever the practice of dipping infected animals was developed and the scourge has been reduced to a minimum. These veterinarians also established the fact that insects might be important factors in spreading other diseases. Dynamite and guns have played a conspicuous rôle where cattle owners stubbornly refused to comply with rules and regulations in dipping their cattle to eliminate the cattle tick. In one western county effective dipping was not done and the authorities were requested to secure the materials and employ men to dip the cattle. Two of these men were shot from ambush, and one of them killed, and notices were posted to the effect that anyone coming into that section to enforce dipping of cattle would get the same medicine. To meet this situation a number of ex-service men were employed and armed. The cattle were dipped.

For many years after pork production became a factor in the business of farming, the dreaded disease, hog cholera, caused annual losses running into the millions of dollars. It is a disease which will wipe out the hogs in entire areas in a few days. It continues to be a destructive scourge but the discovery by department scientists of a serum and virus treatment has minimized it. Statistics show that the death rate among hogs from this disease has been reduced from 88 head a thousand to 39. Eradication of pleuropneumonia among cattle also stands out as one of the foremost achievements of the Bureau of Animal Industry. The disease has been wiped out completely, the United States being the first of the large nations to meet with success in combating this dreaded ailment of cattle. Several severe epidemics of foot-and-mouth disease have been stamped out.

Besides the accomplishments in the interests of the live-stock industry, veterinarians of the bureau have rendered distinct services for mankind. One of them discovered the prevalence of hookworm in the United States and later the same man found a new species theretofore unknown. Only recently one of its scientists found that carbon tetrachloride, a cleaning fluid, was more effective in the curing of hook-worm than any previous treatment. He had been using this compound in the treatment of sheep and dogs for hook-worm. Believing that it might be used more widely he took some of it himself to show that it was not harmful to the human system. Since then it has been tried successfully in the cure of persons afflicted with this scourge.

The Bureau of Chemistry has as one of its chief duties the enforcement of the pure-food law, the object of which is to see that foods and drugs are free from adulteration and mis-branding. At a banquet in Ohio several people were made violently ill from eating canned food in which a toxin had developed, and four or five died. Through the cooperative efforts of Federal, State, and city food officials, and the trade, every can of the brand involved that could be found on the

market anywhere in the United States was removed from the channels of commerce, although it was probable the toxin had developed in but a few cans. The work of the chemist covers a wide range of useful discoveries, from more efficient methods for making cane sirup to treatments to make harness and shoe leather wear longer. For years the bureau has had its eye on the 20,000,000 tons of corncobs produced in this country annually and having no apparent commercial value. Through extensive investigations it was found that the lowly corncob contains many useful chemicals, the most important being a substance called furfural, which can be used in the manufacture of a number of things useful in arts, including printing plates, dyes, stains, and varnishes. It also produces a substance which is a substitute for hard rubber.

Besides being a leader in developing methods of analysis in the whole field of agricultural chemistry, the bureau has numerous individual pieces of work to its credit, such as the manufacture of dyes in the interests of the American trade, a process of making sirup from cull and surplus sweet potatoes, and a successful method of utilizing cull oranges and lemons. Also as the result of testing supplies for other departments, hundreds of thousands of dollars have been saved for the Government by chemists of the bureau.

The Bureau of Agricultural Economics is a combination of all offices and divisions concerned with everything that affects farmers' incomes and profits. It studies the kind and amount of crops and livestock to raise, how to keep cost accounts, how properly to prepare products for market, where and when to market, and market prices and demand. The data on crop production are gathered by hundreds of agents in all of the great markets, and by thousands of individual farmers, and are wired and mailed to Washington where they are immediately compiled. The resulting information, of extreme value to farmers in making their future plans and following the trend of the market, is broadcast without delay through the press, radio, wire, and numerous publications.

Representatives are maintained in foreign countries to promote American agricultural products, to report on the condition of crops abroad, and to study the probable foreign demand and competition; in fact, they are charged with the duties of gathering all information about foreign agriculture that will be helpful to the American farmer. The bureau has inspectors in all important markets to enforce laws relating to marketing cotton and grain, the warehouse act by which it is possible for the farmer to store his products and borrow money on them, and other such measures.

Some idea of the manner in which agricultural information is gathered and dispatched can be seen in the operation of the market news service, established in 1915. Every morning of the year except Sundays, 900 department employees at different markets count the carloads of cattle, hogs, sheep, fruits and vegetables, dairy and poultry products, and other produce, which have come into the market during the night before. This information is flashed into the Washington office over a leased wire. In 1923 this wire was 7,000 miles long. At the close of the day market summaries on all commodities are dispatched for release to hundreds of newspapers, and special reports are prepared for radio, telephone, and telegraph. The information received over the wires at the various branch offices is immediately communicated to producers and the trade, so that at any moment farmers and others may have an accurate picture of the national agricultural market situation.

The Forest Service administers our national forests consisting of over 150,000,000 acres. It is the scientific farmer in charge of our valuable crop of timber. It protects the timber from fire and other damage and supervises the work to see that timberland is reforested. Existing laws provide for State cooperation in the protection of their forests and 26 of the 39 forest States now share these benefits. In the national forests timber valued at millions of dollars is marketed each year under careful supervision; 15,000,000

cattle and sheep graze under regulations which keep the range in good condition, and between 5,000,000 and 7,000,000 campers and tourists find recreation during the summer months. These and other uses of the forests afford a revenue of $5,000,000 annually. At the same time the young growth of trees is protected and other forest resources are conserved. Conservation of our timber resources is the big problem confronting the service. Timber is consumed in the United States four times as fast as it is grown. American standards of living and much of our industry have been developed upon timber supplies so abundant and cheap that this country is the largest consumer of wood in the world. We use nearly half the lumber, more than half the paper made from wood, and about two-fifths of the wood in all forms. The timber to supply our demands has been mined from the forests much as coal has been mined from the ground. The original stand of more than 5,200 billion board feet has been reduced to approximately 1,600 billion feet of virgin timber and 600 billion feet additional in culled and second growth stands. Seventy-five per cent of the remaining virgin timber is west of the Great Plains, and more than 50 per cent of all our remaining saw timber is in the three Pacific Coast States, while nearly half of the lumber cut is consumed in the region east of the Mississippi River and north of the Ohio and Potomac Rivers.

Lumber producing and consuming centers are so far apart that we pay $250,000,000 annually in lumber freight. Seventy-five per cent of the lumber cut and fully 90 per cent of the product of high quality still are taken from virgin stands. Thirty-eight thousand four hundred forest fires burned over more than 8,000,000 acres in 1921.

Depletion and higher prices have reduced the drain on our forests, but the amount taken is still four times the amount replaced by growth. Out of a cut of 22½ billion cubic feet we waste each year more than 9 billion feet. By the elimination of obvious waste in the woods, in the manufacture of lum-

ber and in its remanufacture and use, it is thought possible to save at least 6½ billion board feet of lumber each year and additional amounts of other material. At its forests-products laboratory in Wisconsin the service has been able to accomplish considerable in the matter of wood utilization.

The Bureau of Public Roads has charge of the Government's share in the construction of roads which the Government helps the States build by paying about one-half of the cost. These roads are constructed under the combined direction of this bureau and the State highway departments. Such roads have only been built since 1916, and at the close of 1922 more than 24,000 miles had been constructed. The bureau also builds the roads in the national forests and carries on experiments to learn how to build better roads.

Engineers of the bureau developed the type of road known as a sand-clay road, made by mixing sand and clay to form a surface which combines to a certain degree the different properties of the two materials. As a sandy road is best when it is wet and a clay road when it is dry, the happy combination of the two produces a road surface that approximates the good qualities of each. Roads of this type have been built by the hundreds. Two instruments for testing road-building rock have been invented by members of the bureau staff. These instruments are universally used and were the forerunners of many other instruments invented or perfected by the bureau for laboratory or field testing and research. The most important achievement of the bureau, however, is not a single act or invention, but consists of the successful educational campaign beginning at a time when the roads of the country were generally in an almost impassable condition due to a half century of neglect.

The Bureau of Entomology studies insects and finds new remedies to eliminate the great damage which they do to growing crops and to domestic animals. The principal insect pests with which the experts are working in the hope of finding effective remedies are the cotton boll weevil in

the South, the gipsy moth and the brown tail moth in the Northeast, the European corn borer, and the Japanese beetle which damages grapevines and fruit trees. The campaign against the cotton boll weevil, the scourge of the South, has been waged with unremitting vigor and each year some progress is made, notwithstanding the increased damage which is being done. The results of the lime arsenate dust treatment give increasing assurance that where this method of control is properly applied it will be found most helpful. The method is still expensive, however, and it has not been possible as yet to reduce the cost to a point where it can be used profitably on land which grows less than one-half bale of cotton per acre.

Many insects are injurious. But scientists of the Bureau of Entomology have found many which help them in their fight against the injurious ones. Most of them are called parasites and they destroy harmful insects. Some interesting work has been done by this bureau in the way of bringing parasites from other parts of the world and placing them in fields to destroy crop enemies. The discovery and importation into this country of the vedalia, a ladybird, enemy of the cottony cushion scale of California, is credited to department scientists. This resulted speedily in the eradication of the white scale and the saving thereby of the citrus fruit industry of California.

This bureau made early studies of mosquitoes and flies, and placed the department in a position to give authoritative advice concerning methods of destruction of those insects. The results were of permanent value in the notable work against yellow fever and malaria, so far as mosquitoes are concerned; and against the house fly and the stable fly which have become known as extremely dangerous agents in the spread of diseases to man and to domestic animals.

A special board within the department sees that fraudulent insecticides and fungicides are not sold. One "pill doctor" had a capsule which he said would cure fruit trees of insects

and diseases if placed under the bark of the tree. It was found that trees so treated produced abundant foliage and an apparent crop of fruit, but the Government found that these trees were merely making a last fight against the poison of the capsules. It was several years before the manufacturer of this "cure" was convicted. Another manufacturer had a nest egg made of naphthalene which was reputed to kill lice and mites and at the same time act as a nest egg. Such a discovery, the department thought, would be worth much to poultry raisers if successful. It was found, however, that the "egg" had no effect on lice and mites.

Similar to the warfare against plant and animal diseases and insect pests is the struggle to control or eradicate predatory animals and rodent pests, such as wolves, prairie dogs, and ground squirrels. The annual loss to agriculture from rodents has been estimated to exceed $500,000,000. This has been reduced materially through the campaigns led by the Bureau of Biological Survey, and most of the rodents on a million acres of public and private lands have been destroyed. The Government hunters in charge of this work frequently risk their lives. One in Arizona stopped a charging grizzly bear when it was only 15 feet away. Another in Wyoming had a similar experience, the bear in this case being an old raider which had been in the habit of tearing up camps for the bacon and sugar he would get.

Specialists of the survey study the habits and distribution of native and imported wild life in order to assist in preserving the useful and harmless species. From field and laboratory investigations, scientists of this bureau have been able to demonstrate that most species of native birds are of inestimable value to agriculture as destroyers of injurious insects. Of the 1,200 or more species of birds native to the United States and Canada less than 1 per cent are really injurious. The many game wardens who cover all parts of the country to protect our migratory game and insect-eating birds are employed by this bureau. Other conserva-

tion laws enforced by the Biological Survey include those for the preservation of fur animals in Alaska and the protection of birds and big game animals on national reservations, and those governing importations and interstate shipments of wild birds and animals.

Investigations as to the possibility of raising fur-bearing animals in captivity carried on by the Biological Survey has shown the importance of this new industry. Fur farming is developing rapidly. The fox farms of the United States now contain more than 15,000 foxes and the animals and equipment of the farms are valued at more than $8,000,000. The bureau also makes extensive studies for improving the reindeer herds of Alaska. As a result of a treaty negotiated in 1916 between the United States and Great Britain for the protection of birds that migrate between this country and Canada, the alarming decrease in migratory game birds has been checked by the bureau.

The Bureau of Soils is now engaged in the task of mapping and classifying the soils of the country. Primarily this work is scientific, but the reports and maps have an immediate and practical value in that they furnish information concerning the character and value of the land and the type of agriculture in different sections. The fertilizer investigations of the soil experts include the devising and perfecting of processes of manufacturing fertilizer ingredients and a study of the present supplies, their value and permanency. The bureau has studied the alkali problem and demonstrated successful methods of reclaiming to agriculture lands made worthless by alkali accumulation. It has shown by factory-scale experiments the possibility of manufacturing potash and other valuable products from the giant kelp plants of the Pacific Coast.

The Bureau of Soils has discovered the importance of knowing about soil conditions of other parts of the world, and their resemblance to soils in different States in this country. It was learned that almost every State resembled

some area or country in Europe. For example, the Kentucky blue grass, that we think of as typically American, grows on limestone soil much like that of northern France. The soils of Old Bohemia are almost identical with those of southeast Pennsylvania. One reason for the unusual success of the thrifty Pennsylvania farmer may be due to the fact that the soils of southeastern Pennsylvania are almost identical with those of southern Germany. Even the famous sod of Ireland is duplicated along the coast of Washington and Oregon.

When the great mass of agricultural facts and information has been secured and assembled, there still remains the work of making it available to the people. It is here that one of the greatest pieces of machinery in the department comes into action. Through the Office of Cooperative Extension Work the department employs in cooperation with agricultural colleges several hundred agents. These people, known as county agricultural agents, home demonstration agents, boys' and girls' club agents, and specialists in all lines of agricultural work, are located in most of the counties in the agricultural districts of the United States and work constantly in disseminating information to the people who want and need it.

No branch of the Government passes along to the public so much of its knowledge as the Department of Agriculture. As demonstration work is necessarily limited in scope and in the number of people reached, the printed word is relied upon to broadcast information. Some of the reports are in technical terminology for the benefit of scientists, but the bulk of the literature is printed for the farmer, his wife, and all other homemakers as well. Fourteen million so-called Farmers' Bulletins, popular in style and attractive in appearance, are distributed every year. These little booklets cover more than 1,200 subjects ranging from a treatise on the principles of nutrition to an exposé of the habits of the cockroach. The American who has never read a Farmers' Bulletin can not claim to be wholly informed.

XVI

THE WEATHER BUREAU

THE United States Government spends nearly $2,000,000 a year to learn the secrets of the weather and to transmit its knowledge to the public. No other country in the world has established so extensive a system of weather investigation, although what our Government has done along this line has encouraged similar work in other lands. Every year sees improvement and increased accuracy in the science of weather forecasting.

The Weather Bureau receives reports by telegraph twice daily from 250 land stations in the United States, Canada, and Alaska, from 350 ships at sea, and from about 50 foreign stations. The information thus gathered enables the experts to venture predictions about what the weather will be for the ensuing 36 to 48 hours, and, in a general way, for a week in advance. Weather conditions of a day and locality are associated with what are known to the science as areas of high and low pressure. The movement across the world of these pressure areas brings changes in temperature, in winds, and in the weather generally; and the meteorologist, by obtaining information as to what the weather is in other localities, can closely determine what effects will be produced from the development of these phenomena.

It is said that more than 80 per cent of the winds, rains, and storms follow beaten paths, behaving in accordance with established principles, and doing just as the weather man predicts. In fact, the daily forecasts of the Weather Bureau are 88.4 per cent correct. Sometimes, however, a storm

fails to follow the beaten paths and the weather prophet makes mistakes. The average man remembers the one failure rather than the many accurate forecasts. Weather Bureau predictions frequently are couched in rather tentative terms. Formerly they were even more doubtfully phrased. Such expressions as "probably showers" and "probably fair" were employed even more frequently than now. Prof. Cleveland Abbe, one of the pioneer meteorologists who was connected with the earliest efforts of the United States Weather Bureau, often was scoffed at for his predictions and for their careful and tentative language. This resulted in the nickname being fastened upon him of "Old Probs."

The weather forecasts are based upon simultaneous observations of local weather conditions taken daily at 8 o'clock in the morning and at 8 o'clock in the evening, Eastern Standard time, at about 200 regular observing stations throughout the United States and the West Indies, and from the reports received daily from other places in America, Europe, and Asia. The field of observation extends well into the Arctic regions, including stations in Alaska, northern Canada, eastern Greenland, Spitsbergen, and Jan Mayen. From most of these stations reports are sent by radio. The results of these observations are telegraphed to the Weather Bureau at Washington where they are charted for study and interpretation by the experts.

A complete telegraphic report includes data describing the temperature, atmospheric pressure, precipitation, direction of the wind, state of the weather, wind velocity, the character and quantity of cloud formations, and the direction of their movement. From these data the forecaster, by comparison with preceding reports, is able to trace the paths of the storm areas from their first appearance to the moment of observation and approximately to determine and forecast their subsequent courses and the occurrence of accompanying weather conditions. Forecast centers are

established at Chicago, New Orleans, Denver, and San Francisco.

Within the two hours following the morning observations, the forecasts are telegraphed from the forecast stations to more than 2,300 principal distributing points, where they are further disseminated by mail, telegraph, telephone, and radio. The forecasts are mailed to about 135,000 addresses each day and are available to nearly 8,000,000 telephone subscribers within an hour from the time the predictions are made. They also are broadcast from about 125 radiophone stations distributed through nearly all of the States.

In addition to this service, there is what is known as the climatological service which collects data with reference to temperature and rainfall and other conditions. During the winter months a publication known as the Snow and Ice Bulletin is issued, showing the area covered by snow, the depth of the snow, the thickness of ice in rivers, and other matters reported from every section of the country. This publication is of special benefit to those interested in the winter wheat crop, to ice cutters and dealers, to manufacturers of clothing, rubber goods, and other commodities, the consumption and use of which are affected by snow and ice.

Perhaps the most directly valuable service rendered to the people is that of the warnings of storms and hurricanes issued for the benefit of marine interests. These warnings are displayed at nearly 400 points along the Atlantic, Pacific, and Gulf coasts and the shores of the Great Lakes, including every port and harbor of any considerable importance. There also is a most effective system of broadcasting weather information, forecasts, and storm and hurricane warnings through the naval radio stations to ships at sea. This service has attained such a degree of perfection that it is possible for a steamer to avoid a storm, if it is not too general and if the ship is willing to steer out of her course. Scarcely a storm of marked danger to maritime

interests has occurred for years of which ample warnings have not been issued from 12 to 24 hours in advance.

The warnings displayed for a single hurricane are known to have detained in port on the Atlantic coast vessels which, with their cargoes, were valued at more than $30,000,000. The warnings of sudden and destructive changes in temperature are issued from 24 to 36 hours in advance and are disseminated throughout the threatened regions by telephone, telegraph, radio, and otherwise. The warnings issued for a single cold wave are said to have saved millions of dollars' worth of property from destruction. The warnings of frost and freezing weather are of great advantage to growers of fruit, tobacco, cranberries, and market-garden produce. The value of the orange blooms, vegetables, and strawberries protected and saved on a single night in a small district in Florida was estimated at more than $100,000. If cold weather is known to be coming, plants and trees may be covered and stoves may be set burning in the orchards. Railroad companies make constant use of weather forecasts in all of their shipping business. Perishable products are protected against extremes of temperature by icing or heating. Often shipments of perishable goods are expedited when it is found possible to get them to their destination in advance of an expected unfavorable change in the weather. When this can not be done, goods in transit are run into covered sidings for protection. Bananas require very careful handling and must be kept at a temperature ranging from 58° to 65°, and the banana shipper keeps close watch on the weather map. Use of the modern refrigerator car has taken much responsibility off the meat packer who used to confine his shipments largely to cold weather, but the railroad operators, in charge of the cars, must watch the weather to be sure that they have adequate ice.

Temperature forecasts and cold-wave warnings are closely followed by manufacturers of ice cream and soft drinks. The ice-cream maker knows that if the following day is

going to be hot, he must make a larger batch because his calls will be greater. On the other hand, if a cold wave comes and he makes a large quantity, much of it will be wasted. With notice of a cold wave, greenhouses are closed and the boilers fired. Large stockyards drain their mains. Gasoline engines are drained. Work in concrete is halted. Ice factories reduce their output and also take care of exposed ammonia condensers. Railway companies arrange for more heat in fruit and vegetable cars, less ice in meat and egg and butter cars. Natural gas companies turn a large amount of gas into their pipe lines. Merchants cut down their advertising space for they know buyers will not be likely to venture out. Coal dealers parcel out coal carefully, if the forecast indicates a cold wave of long duration. The dredging of sand and gravel ceases and iron ore piled for shipment is placed quickly in the holds of available vessels to prevent the mass from freezing solid. Charity organizations prepare to meet demands for increased food and fuel allowances from the suffering poor. Although the Weather Bureau already touches the daily life of the people in innumerable ways, its chief, Charles F. Marvin, says that its work will increase in benefit as the scope widens.

Rain forecasts are of great benefit to the farmer who can make hay only when the sun shines. They protect the raisin crop, which is sensitive to rain at the ripe stage. They enable the vegetable grower to dig his vegetables in dry weather, the grower of alfalfa to bale his crop in the field, the maker of lime, cement, brick, drain tile, and sewer pipe to protect them from moisture during the process of manufacture. Innumerable benefits arise from the forecasts.

The publication of river and flood forecasts based upon reports issued by the numerous stations has saved many lives and property running far into the millions in value. It is said that some of the illiterate and superstitious people in remote sections along the lower Mississippi at first scoffed at the flood forecasts made a week or more in ad-

vance of the rising of the river, but later, when proved to be accurate, changed their attitude and looked upon the flood forecasters as persons possessed of occult and supernatural powers.

The River and Flood Service of the Weather Bureau is maintained primarily for the purpose of giving warning of the approach, intensity, and duration of floods in the rivers of the United States. For this the country is divided into a number of districts, each under the supervision of a regular Weather Bureau station. There are about 900 river-gaging and rainfall stations in all, and about one-half of these report daily to the district centers by telegraph.

Flood warnings are of great value to every community, especially to farmers and commercial interests, and warnings of floods in smaller rivers can be issued a day or so in advance, while accurate forecasts for the larger rivers, such as the lower Mississippi, can be made as much as three weeks in advance.

During the fiscal year, 1922-23, flood losses in the United States, as reported, totaled about $37,000,000, mostly unavoidable, while the value of property saved by the Weather Bureau warnings as incompletely reported was more than $8,000,000. Daily forecasts of coming river stages are also made along the larger rivers for the benefit of inland water navigation, which is now undergoing a great revival in the shape of barge transportation.

In the mountain regions of the West an elaborate snowfall service is maintained. The depth and water content of the accumulated snows are measured at regular intervals during the winter and spring, and at the proper time forecasts are made of the amount of water that will be available during the coming season for the benefit of irrigation and water-power interests. At present 110 mountain snowfall stations are in operation.

In its earlier years the Weather Bureau depended almost solely upon observations of surface conditions for the

material on which to base its forecasts. It was soon realized that the lack of information as to conditions in the upper air constituted a serious handicap. Action was therefore taken as rapidly as possible to overcome this by the establishment of stations at which upper air observations could be made. Such observations, begun about 25 years ago, were at first made by means of kites, but later the use of various types of balloons was introduced. By means of these agencies accurate measurements are made of temperature, moisture, and wind direction and speed at various heights above the earth's surface. Like other important phases of the Weather Bureau's work these upper air observations serve two main purposes. They provide material for current forecasts and furnish data for special studies.

In carrying out the first purpose, observations with balloons only are used. These are made twice daily and are quickly computed and telegraphed to forecast centers where they are charted on maps representing different altitudes and used as a basis for aviation forecasts. In addition to dissemination by telephone and telegraph, these forecasts are broadcast by radio from Washington, Chicago, and San Francisco twice each day.

For the second purpose, that of research, observations obtained by kites and different types of balloons are accurately computed, classified, and summarized. Special studies of the data are made with a view to increasing knowledge of the characteristics of the atmosphere and of laws governing storm movement, thus improving our bases of forecasting. A current summary of upper air conditions over the country is published in the Monthly Weather Review and in addition there appear from time to time in that periodical or in the aeronautical journals the more important results of this branch of the Weather Bureau's work.

The instruments used by the Weather Bureau to make a continuous record of weather conditions are extremely

ingenious and interesting. One of these is an automatic device which produces on paper a record of cloudiness or sunshine. It consists of a straight glass tube with a bulb at each end. These bulbs are filled with dry air, the chambers being separated by a small quantity of mercury and alcohol. Platinum wires are inserted in the middle of the tube. The lower bulb is blackened with lampblack and is always turned toward the south. It is so mounted that whenever the sun shines brightly the recording pen writes a zigzag track which changes to a straight line as soon as the sun becomes obscured by clouds. A chart is placed upon a revolving drum operated by clockwork and by this means the Weather Bureau is securing, year in and year out, a record of the amount of sunshine at the point of observation. Precise knowledge of the average amount of sunshine a given location enjoys in a year is invaluable as a guide in knowing what crops to cultivate.

Another instrument records the velocity and direction of the wind, while others make records of temperature conditions, barometric pressure, and rainfall. The rain gauge, which records automatically the amount of rain falling, consists of a receiver and a little bucket with two compartments, mounted on trunnions in such a way that one of these compartments is always under the receiver. When a compartment receives one-hundredth inch of rain, it tips over and empties its contents into a tank and in the act of doing so brings the other compartment into position to be filled. When the bucket tips, an electric circuit is closed and a recording pen tallies the number of bucketfuls thus discharged.

To the United States belongs much credit for the development of the science of meteorology. Joseph Henry, of the Smithsonian Institution, who had aided in the perfection of the telegraph, by the use of that instrument began to draw weather maps and as early as 1856 he displayed them each day at the Smithsonian. The first weather maps pre-

pared in this country for public distribution were issued from the Cincinnati Observatory in 1869 by Prof. Cleveland Abbe, with the cooperation of the Western Union TelegraphCo. This experimental undertaking was so successful that in the following year Congress was induced to establish a national weather service, as a branch of the Signal Corps of the Army. This official service at once began publishing weather maps at Washington and eventually they were published by local offices of the service at many large cities throughout the country. They have also been published to some extent by newspapers. In 1890 the Weather Bureau was transferred from the War Department to the Department of Agriculture.

Many weather superstitions have been proved to have no foundation in fact. One of these was the theory that our forefathers were healthier than we are because of their old-fashioned winters and summers. An examination of systematic temperature and rainfall records shows that there has not been an appreciable change in a century. Some winters are colder than others and some summers hotter, but they average about the same as in the good old days.

The maps and bulletins of the Weather Bureau are utilized in many ways by the public. Grain and cotton brokers are guided largely by the forecasts in their operations. One of the largest cotton brokers in the United States recently stated that there can not be a thunder shower anywhere in the cotton area of the world without his organization's knowing about it within a few hours. Data of atmospheric pressure are used in tests of boilers, radiators, and automobiles and in studies of the amount of fuel required to drive engines under varying atmospheric pressures. Statistics of wind force and direction assist in the installation of water-supply systems to be operated by windmills, in determining the origin of fires resulting from flying sparks, the pressure to which large buildings will be subjected under stress of heavy storms, and the surface movement of lake

waters in connection with the disposal of city sewage. The humidity records are used by silk and candy manufacturers, in tuberculosis investigations, and in studies of the loss of electric current in high voltage transmission. River data are utilized by filtration plants in guiding their methods of chemically purifying the water used for drinking purposes as the conditions of the raw water supply with regard to bacteria content and turbidity are greatly affected by the height of the river and the amount of rainfall. Maps are used by business men generally, by aero clubs and the air mail in studies for flights, by the Army and Navy in this connection as well as in connection with studies of the effect of wind on rifle and ordnance marksmanship, and by school-teachers in class instruction.

The library of the Weather Bureau contains about 42,000 books and pamphlets, consisting principally of technical books on meteorology and allied sciences and of published climatological data from all parts of the world. It is available to all Weather Bureau officials and to students of meteorology generally, who either consult it personally or through correspondence. In addition to its general card catalogue, it keeps up to date a catalogue of the meteorological contents of the principal scientific serials of the world.

Weather forecasting of the time of Jesus has come down to us. He said: "When it is evening, ye say, It will be fair weather: for the sky is red; but when it is morning, ye say, it will be foul weather to-day: for the sky is red and lowering." This simple rule is found to be fairly accurate.

The work of the Weather Bureau commands increasing respect and greater reliance is placed in its accuracy, than in the earlier stages of the science of meteorology. The public often treated official predictions with as weak faith as the members of the church congregation who went to attend a special service for the express purpose of praying for rain, not one of them carrying an umbrella or a raincoat.

XVII

THE DEPARTMENT OF COMMERCE

THE American business man who wants to sell motion-picture films to the Hindus, locomotives to the Peruvians, or adding machines to the Persians should see the Department of Commerce, Uncle Sam's traveling salesman, whose territory is the world at large. Commerce, the chief business of the children of men, is its principal province. In the office of the Secretary there is a huge map of the world which covers the entire side of a wall. From the spot which marks Washington on this map there radiate scores of spidery threads which extend for greater or lesser distances to every part of the map. At the end of each of these lines is a colored button. By reference to the code it is learned what this colored button represents. Yellow ones are for trade commissioners, blue ones for consuls, and so on down through a rainbow of designations for commercial attachés, special agents, and district offices of the Bureau of Foreign and Domestic Commerce.

Each button means that the Department of Commerce has stationed at the place where the point is inserted, a source of commercial information. Many of them represent permanent assignments, but some represent roving agents and their buttons are moved when the cables advise that a new field is being visited. News of commercial developments is sent in by cable, radio, and mail from these outposts of American trade. The steel market of Belgium, the silk market of China, the ivory market of the African Congo develop nothing of interest to American business men which

is not promptly reported to Washington. The storms that affect agricultural production, the catch of fish in distant seas, what interest rate merchants in India have to pay for money, how the French taxes are being paid, and a thousand other items of importance to business men, are reported to the Washington headquarters daily.

In addition to the general information, the agents send in statements of opportunities to sell American goods in distant ports. An agent in Bangkok may discover that a merchant wishes to open an agency for American-made barbed wire. He notifies Washington. Another agent in the South Seas finds a customer for typewriters. He sends word. This process of gathering general and specific information is going on constantly. When the information reaches Washington it is transmitted in various ways to the American manufacturers, dealers, exporters, and buyers interested. A constant stream of circulars is being sent out by mail to business men; in addition, the department publishes a weekly magazine called Commerce Reports. In this, reports of business conditions all over the world are printed, as well as facts concerning the volume of American exports. This magazine has a subscription price of $3 a year domestic and $5 foreign, merely covering the cost of printing.

Foreign agents of the department also give personal assistance to American salesmen abroad. Located at strategic points in various countries, they know the language and are familiar with the local laws and business customs and to some extent with the credit of prospective customers. Perhaps an American salesman of cash registers, steel rails, textiles, or what not finds difficulty in persuading a buyer to sign an order. By calling to his assistance the American trade agent stationed at the nearest point, he frequently gets the deal closed. No charges of any sort are made for such service, nor is any charge made for the information disseminated by the department.

If an American manufacturer has an order from the interior

of China or some other distant land for goods and does not know who is placing the order and whether or not he is responsible, the Department of Commerce will investigate. In order better to serve the needs of American business men, the department has established branch offices in important American cities. Such offices are located at St. Louis, San Francisco, Chicago, Boston, New York, Philadelphia, Seattle, Atlanta, and New Orleans. In 25 other cities there are cooperative offices where the department has a man in charge of its information in connection with the offices of chambers of commerce, commercial clubs, or boards of trade. Files of information valuable to business men are maintained at all these offices.

The Bureau of Foreign and Domestic Commerce is organized in divisions, each of which has charge of developments in some part of the world or in connection with some commodity. Regional divisions are those for Latin America, the Far East, Western Europe, and Eastern Europe and the Levant. There are commodity divisions giving specialized attention to trade data on agricultural implements, automotive products, boots and shoes, chemicals, coal, electrical equipment, foodstuffs, hides and leather, iron and steel, lumber, machinery, paper, petroleum, rubber, specialties, textiles, and transportation and communication Other branches deal expertly in matters pertaining to foreign tariffs, commercial laws, finance and investment, research, statistics, and commercial intelligence.

While the Domestic Commerce Division plans to study eventually all phases of domestic commerce, its immediate activities are directed toward a study of methods, costs, and wastes in domestic commerce distribution processes, including the relation of transportation charges to retail prices, through cooperation of retailers, manufacturers, wholesalers, and other agencies between the original producer and the ultimate consumer.

Research is being made in the marketing of certain com-

modities through analysis of the actual processes and costs of distribution, working back through retailing, jobbing, wholesaling, warehousing, manufacturing, preparation, assembling and marketing of raw materials. This provides an approach to the complex problems of domestic commerce because distribution contacts with every phase of commerce from the production of raw materials to the ultimate delivery to the consumer, as well as such facilitating activities as financing and insuring.

The Department of Commerce cooperates with American business men in the important work of simplification and standardization of products. This has been one of the phases of the department's work especially emphasized since Herbert Hoover was made Secretary. Mr. Hoover brought to the Government service an unusual equipment as an engineer and an extraordinary range of experience in national and international economic affairs. The American manufacturer is an individualist and his tendency to make a product without reference to those of other manufacturers has resulted in confusion and waste. A typical instance of this branch of work is in an article of such universal use as the bed. It was found that manufacturers were making beds of scores of different dimensions. The result was that if a man bought a bed in Grand Rapids and springs and blankets for it in Chicago, the springs might not fit the bed, nor the blankets the springs. Through trade conferences, held under the direct auspices of the department, three standard sizes of bed were agreed upon. All bed manufacturers agreed to make all their beds the same length and to make three sizes—single, three-quarter, and double beds—of precisely the same dimensions. Next, bed springs and blankets were standardized in the same way, so that now the householder can be assured that the springs and blanket he buys in San Francisco will fit the bed he bought in New York. Recently the hosiery industry was persuaded to reduce the variety of sizes of boxes for packing hosiery from

300 to 55. This resulted in an annual saving estimated at $3,000,000.

The work steadily is progressing under the direction of what is known as the Simplified Practice Division of the department. One of the most important undertakings is the simplification of types and standardization of automobile tires. Building brick already has been standardized by eliminating 73 varieties. The curious, oddly shaped paint cans of all sorts and sizes which one used to see in hardware store windows are a thing of the past. It was found that putting paint up in such containers increased the cost and an agreement was reached eliminating all but a few standard sizes. The Simplified Practice Division works with trade associations constantly in carrying out this program. It claims, as merits of the plan, that it will decrease stocks of goods which need be held, production costs, selling expenses, misunderstandings in placing and filling orders; and that it will increase stability of employment, promptness of delivery, and quality of product. A knotty problem of the division is the standardization of the size and proportions of the American flag. Flag manufacturers were accustomed to making the Stars and Stripes in no less than 200 different shapes and sizes. An agreement was sought to adopt a flag of standard shape approximately twice as long as broad, and to have all manufacturers observe these proportions, making flags in no more than a dozen sizes.

The Department of Commerce indeed covers a wide range of governmental activities. The regulation of standards of measure, the gathering of census statistics, the propagation and distribution of fish, the maintenance of lighthouses, the supervision of navigable waters, the Coast and Geodetic Survey work, and the inspection of steamboats are among the affairs with which the department deals.

The Coast and Geodetic Survey does work of the utmost importance to mariners. This agency of the Government is charged with the duty of charting the United States coast

line, and the coast lines under the jurisdiction of the United States. The survey also makes studies of rivers to the head of navigation. It investigates the depth, temperature, and currents in the waters of the coasts and in the Gulf Stream and the Japanese Current. It studies the tides and publishes tidal information. It carries on a study of the magnetic properties of the earth and the variations of terrestrial magnetism. It determines precise levels in the United States and geographic positions by astronomical observations and triangulation in order to furnish the reference points from which all State and other surveys begin. The granite post, with its metal bench mark, showing the exact geographical position and height above the sea, is a familiar sight in many parts of the country. Sometimes these official bench marks are placed on buildings which, the survey has reason to assume, will stand undisturbed without natural or artificial settling or removal for an indefinite period. One of the most interesting of such marks is on the first customhouse in the United States which has been standing at Yorktown, where Lord Cornwallis surrendered to General Washington, for more than two hundred years.

Recent work of extraordinary interest and importance done by the survey is the wire dragging in Alaskan waters. Here there are hidden menaces to navigation known as pinnacle rocks. In places where the bed of the ocean is presumed to be deep and fairly smooth, a pinnacle of rock will rise like a church spire, sometimes reaching to within a few feet of the surface. Many vessels have been lost by striking these pinnacles, the rocks usually being named after the ships which strike upon them. As soon as such a disaster occurs, the rock is charted. The survey has been seeking, by a process known as wire dragging, to prevent this expensive and tragic method of finding reefs. Two vessels proceed at slow speed with a wire cable fastened between them. This cable is weighted and drags in the water between the two vessels as they sail along. The dragging wire will catch on any

obstruction and reveal its position. In this way thousands of square miles of water surface are covered and each pinnacle rock is carefully marked on the charts which are furnished to all mariners.

The survey has perfected a most remarkable machine. It is a mechanical prophet and its predictions are 100 per cent correct. Its province is the sea and it prophesies the tides. This machine predicts the time of a high tide to the minute and its height to within a tenth of a foot—two years in advance. It is an old adage that time and tide wait for no man. Here is a case where man has declined to wait for the tide, but has made a machine which at the turn of a crank will advise him of its precise rising and falling. Tide tables are compiled on the basis of the machine's predictions and are printed a year in advance. Every ship must be equipped with a book of these tables as the height of a tide at a given hour may be the controlling factor in the ability of a ship to enter a channel or pass safely over a bar. An error of a few minutes in the calculation might wreck a great ship and cost many lives. No such errors are made. The machine is infallible. Before its invention, the labor and skill of 60 persons were required to work out the elaborate computations necessary to make the forecasts. There was a chance of error in the work of men while there is none in the work of this marvelous machine. Its mechanism was invented and perfected and the machine actually built by employees of the survey.

The Steamboat Inspection Service inspects certain classes of domestic merchant steam vessels, motor vessels, sailing vessels, and barges of the United States, and foreign steam vessels carrying passengers from ports of the United States, except those of countries having reciprocal inspection with the United States. Inspection covers an examination of the hull; life-saving equipment including lifeboats, life rafts, and life preservers; fire apparatus; and boilers and machinery. Certain classes of vessels are tested as to stability. No vessel requiring inspection may lawfully navigate the waters of the

United States without a certificate of inspection issued by the service. The number of passengers carried by excursion steamers is counted by inspectors. The masters, mates, pilots, and engineers of steam and motor vessels, and the masters and chief mates of certain classes of sail vessels, are examined and licensed, as are operators of motor vessels. Able seamen and lifeboat men are certificated by the inspectors. The examinations of masters of ocean steamers and chief engineers are difficult and a certain amount of experience is required before an applicant may obtain a license.

During the year ended June 30, 1923, 247 lives were lost on inspected vessels, of which 166 were from suicide, accidental drowning, and other similar causes, leaving a loss of 81 as fairly chargeable to accidents, collisions, and founderings. In all, 323,130,362 passengers were carried on domestic steam vessels required to report the number of passengers carried. Dividing this by 59, the total number of passengers lost, shows that 5,476,785 passengers were carried for each passenger lost. The number of lives directly saved during the year by means of the life-saving appliances required by law was 907.

The Lighthouse Service has charge of the construction and maintenance of lighthouses and other aids to navigation along the coasts, Great Lakes, and large rivers of the United States. It is the largest organization of its kind in the world and maintains all sorts of aids to navigation, from the small spar buoy up to the big outside lightships. Lighthouse keepers have some of the most thrilling experiences of any people in the Government service. Many of the buoys maintained have flashing acetylene lights, and many are also provided with automatic whistles or bells. A new and promising device for the safety of navigation is the radio fog signal, by which vessels equipped with the radio compass may locate themselves accurately in fog.

The story of lighthouses is an old one. The Pharos of Alexandria, one of the earliest lights of which there is any

record, was listed as one of the Seven Wonders of the World. Governments did not build them frequently, however, until modern times. In fact, dwellers along the shore objected strenuously when the British Government began the establishment of coastwise beacons. They were accustomed to watch for wrecked ships driven upon rocky coasts because of the absence of lighthouses, and then salvage the valuable goods found in the wreckage. It is on record that petitions were sent by these beach-combers to the King of England urging him not to permit erection of lighthouses because the beacons deprived them of riches which Providence cast into their hands. Fortunately for mariners, the King took a more humanitarian view.

In addition to keeping the great beacons burning and in good order, the keeper of the light also maintains a sharp look-out within the range of his vision for distressed ships. A remarkable example of the vigilance of keepers was cited by Hon. William C. Redfield when he was Secretary of Commerce. The President of the United States, each Cabinet officer, and some other officials of the Government have distinctive flags. When such an officer is aboard a Government ship, the vessel will fly his flag. Until Secretary Redfield made a cruise of inspection on the Great Lakes no Secretary of Commerce ever had done so; hence the official flag of the Secretary had never been seen actually flying from a masthead on those waters. Light keepers are supposed to be familiar with all official flags and to blow salutes on their sirens when any high officer passes. On this occasion, no publicity of any kind had been given regarding Mr. Redfield's inspection trip, yet when his vessel passed an obscure lighthouse, far up the Great Lakes, and while the ship was a mile away, the lighthouse siren shrieked out the Secretary's salute. The keeper had been sufficiently vigilant to descry and, through a telescope, identify his chief's flag more than a mile away, despite the fact that he had never seen its design before except in his instruction book.

The Bureau of Navigation of the department touches almost every movement of an American vessel from the time when she is contracted to be built until she is lost at sea or sold to a foreign owner. Inspection of the naval architecture, admeasurement, assignment of numbers, and the decision on questions involving the collection of tonnage taxes fall within the province of this bureau. It also has a large share in enforcement of the navigation laws which are of a highly intricate nature. In recent years it has had important contact with radio development. It licenses radio operators and stations. Whereas formerly it merely licensed the few operators needed for ships and shore stations, the development of amateur radio has expanded its activities to a point where in a recent year 20,000 amateur sending station permits were issued. About 4,000 permits for commercial stations are issued annually. The two or three million amateur receiving stations require no permits.

The department deals extensively with the gathering and publication of data concerning the commerce of the United States. It issues annually a most useful publication called the Statistical Abstract. The Abstract contains data about every line of activity in which the Government is interested. If one wishes to know how many telegrams are sent in the United States in a year, it has that information. If he desires to ascertain how many tons of freight were carried in a certain year, it will tell him. It tells how many boys and girls go to school in the United States, how faithful they are in their attendance, and what it costs to educate them. It tells how many farms there are in the U. S. A., and how much the average farm is worth. It tells how many women are breadwinners, how much taxes the average man pays, how many fires there are in a year, and practically everything else except the number of the sands of the sea.

XVIII

THE BUREAU OF STANDARDS

The National Bureau of Standards is a house of wonders. Its hundred laboratories abound in proof that truth is stranger than fiction. The marvel of it is not merely that its experts weigh to one part in a billion or talk and work to the millionth of an inch, the millionth of a second, or the billionth of an ampere, but that such ultraprecision is of the utmost practical use.

In the main building is the standards vault. It contains the national standard which governs all weighings in the United States. It is kept with almost religious care. So delicate are the balances used that the crossing of the letter "t" in a penciled signature can easily be weighed. The change in weight when a piece of metal is raised 1 inch from the earth can be measured. Recently a series of crystals was weighed with an error less than one part in a billion.

In another room means are being devised for ruling 25,000 or more lines within 1 inch, straight and parallel, with no error in spacing so much as one-millionth of an inch. Such a ruled surface has the power to analyze a ray of light from a star or an atom, to tell what it is made of, to measure the light waves, and to disclose the structure of the atom. An expert recently measured and certified the size of an incredible bit of diamond point microwriting on glass so small that the Lord's prayer was invisible to the naked eye. Forty Bibles could be written at that rate on 1 square inch.

An impressive sight is the giant testing machine, with a

pulling power of 1,150,000 pounds and a crushing power of 2,300,000 pounds—a Titan which crushes to destruction a huge structural column or tears apart a steel shaft 5 inches in diameter. It records the crushing force of a thousand tons or that required to crush an eggshell. Two huge screws finished with amazing precision apply the power by means of oil pressure, while springs distribute the shock when the specimen breaks. In another building is a crushing machine four times more powerful, designed to bear the enormous stress required to test the full section members for great bridges. It can crush a solid brick pier 40 inches across, set in cement. It recently showed that the girders of the great Delaware River Bridge have full strength to carry the expected traffic, and 100 per cent reserve.

The bureau is called "the house of accuracy," but Director George K. Burgess and his staff know the point where waste begins. They aim to give each case the accuracy it deserves. A clinical thermometer is needlessly exact if certified better than a tenth of a degree. A fundamental standard for a great industry deserves days or weeks of the best scientific study. Fifteen years were well spent in preparing the bureau's fundamental standards of length and mass. Respect for the infinitesimal is a cardinal virtue at the bureau. No factor is too slight, no labor too exacting, when national standards are involved. Science blossoms into discovery with each new advance in precision. The bureau's creed holds that progress rests on that refined scrutiny of things which expresses itself in precise measurement.

In one room an expert is making master gages, shaped like thick coins, true to size within one two-hundred-thousandth of an inch. These may be verified by novices by bureau methods using single-hued light. It is most uncanny to see the quivering streaks of light and dark revealing within a millionth of an inch whether a gage or optical surface is true to stated size. Methods when devised are then made as automatic as possible. Another expert is graduating linear

measuring scales, using light waves as his only standard of length, at times producing scales accurate to one-millionth of an inch. In a nearby room the visitor may behold by optical means the bending of tool-steel shafting 3½ inches thick beneath the weight of a visiting card.

The unique facilities of the bureau attract visitors from all parts of the world, and have thus stimulated foreign governments and large industries to establish similar institutions. Twenty buildings are connected by tunnels carrying a multiplicity of services. Pipes, cables, and ducts distribute for hot, cold, and iced water; steam, vacuum, and compressed air; supercooled brine; all kinds of electricity. Precision time service, too, may be wired into any room to heat true one-second intervals controlled by that marvel of precision the Riefler clock, true to the fifth of a second per month. One laboratory is equipped to liquefy any known gas, even air, and solidify any element except helium. It serves most practical uses. Research demands the widest possible range of temperatures, and the standardization of the temperature scale must reach from absolute zero to temperatures hotter than the surface of the sun. Absolute zero is 459 degrees below the zero measured on a Fahrenheit thermometer, while the heat of the sun's surface is estimated as at least 10,000 degrees above.

The layman hardly appreciates how important the work of the bureau is to him. His groceries are sold by measures controlled ultimately by the bureau's standards; his electric light conforms to its specifications; his doctor's thermometer is tested and certified here; from the druggist's prescription to the ton of coal, every household measurement rests upon standards maintained in our national laboratory.

To the visitor, there is a sense of bewilderment at the vast variety of work in progress in these busy workshops of science with a regiment of workers who return to the nation in increased wealth many times the total cost of their labor. Physicists are busy increasing the utility of materials and

devices, and chemists are finding new ways of analysis and testing. A score of arts and crafts conspire in bettering processes and appliances, which, with the most varied measures of size, speed, strength, and other properties of materials, are helping to create the efficient industries of to-morrow.

Materials in great variety are sent here, literally to have their fortunes told, not by occult crystal gazers but by experts with microscope and test tube. The materials range from horseshoe nails for the army mule to cement for the Panama Canal. They include leather, rubber, and textiles; bookmaking materials such as paper, ink, type, glue, and cloth; structural materials such as metals, lumber, concrete, brick, plaster, paints, and varnishes; office supplies such as writing paper, sealing wax, mucilage, and typewriter ribbons. Inks and dyes are faded by ultraviolet rays; papers are burst, folded, and pulled, to measure durability; typewriter supplies are tested in service by high speed automatic means; scarcely a material escapes the scientific test. Where flaws are detected, specifications are made more definite by the maker and user jointly. The result is a steady rise in the quality of materials.

Here are developed new materials—quick-setting lime blocks, colored wall plasters, papers, glazes, refractories, enamels; new devices such as the radio direction finder, that sixth sense of the homing pigeon applied to radio; the rate-of-climb meter for the aviator; the resistance thermometer for reading temperatures electrically; the sensitometer for measuring the performance of photographic plates and films; the stable zenith to keep fixed a reference plane for air and water craft; the autographic performance recorder for automobiles; and scores of like ingenious and useful inventions.

To measure the heat of a single star, an instrument has been designed and made which is so delicate that it is responsive to the heat of a candle several hundred miles away. Valuable as this work on the stars has been, opening up a new art for

the astronomer, it comes closer home. The studies in heat waves reflected and absorbed by various materials led to the announcement that a tent will keep out 80 per cent of the sun's heat if the cloth is painted outside with white paint and inside with aluminum paint, and that painting the roof of an ice wagon with aluminum paint will cut off half the heat which usually gets through to melt the ice. The building industry was astonished to learn that for the same reason a radiator painted with aluminum is only one-third as efficient as one painted with ordinary paint. The scientist in charge of this work hitched his wagon to a star, with an immediate and direct effect on the American pocketbook, promoting heat comfort and economy in winter, and healthful coolness in summer.

How far a research may lead is pure hazard, but it always finds useful applications. A Government department asked that silver tarnish be investigated. Needless to say, the work was thorough. The tarnish proved to be silver sulphide, and for the first time large quantities of such tarnish were made, turned into wire, and found to possess unique electrical properties.

There is a giant furnace in which full-sized walls of houses can be built of any material and burnt to destruction under measured control. The behavior of building materials in a fire is thus minutely studied to aid architects and engineers to design safe and efficient structures. Nearby is the bureau's famous stucco test structure, in which 57 varieties of outdoor stucco are monuments to their own durability. The industries cooperate in replacing worn panels with better material. This experimental survival-of-the-fittest is raising the standard of American stuccos and promoting their use.

To measure a length seems simple but, when no error so much as one part in two million is admissible, the simplicity vanishes. In a basement tunnel 175 feet long, the precise measure is taken of surveyor's tapes and their corrections are certified. The standard meter bar, packed in ice, runs in a

truck through the tunnel as the observer lays off a series of 1 meter intervals from pier zero to pier 5, the piers being 1 meter apart. A 5-meter bar is then used to lay off the ascertained 5-meter interval until the tunnel length is standardized, 50 meters between end piers. Even the change of length of the tunnel as it expands during the day is measured. As a result American surveyors have tapes with corrections known to incomparable precision.

The 400-foot water tank is of interest to water engineers. Above this runs a car at speeds variable from 2 inches to 20 feet per second. From the car, dipping into the water, hangs the water current meter to be tested for use in measuring stream and river speeds. The car speed is easily measured and the meter must read the same. A stationary meter in moving water and a meter moving in standing water give the same result. The bureau certifies corrections to give the water engineer an accurate basis for his estimates of water supply and flood hazard.

Photographing through fog is another achievement of the Bureau of Standards. If the characteristic haze light is screened out, this wizardry becomes possible. Haze light is blue and fogs the plate in the ordinary camera. To screen out the blue and photograph with red and yellow, requires plates highly sensitive to red. Ordinary plates do not respond but print red as black. By bathing special fast plates with dicyanin, a very rare blue dye, a new technique was devised. With it at a height of a mile, in the one one-hundredth of a second, good photographs of the city of Washington were made through a haze which obscured the view.

The bureau is equipped to manufacture optical glass; to mold, grind, and finish lenses, prisms, and plates; and to design and construct new types of optical instruments. For example, a target-practice camera for the Navy was designed by which the exact location of every shot could be recorded and measured.

Novel tasks are daily put up to the bureau. Deciphering worn manuscripts is as old as the art of writing, but deciphering paper records burnt to destruction, leaving a mere film of fragile charcoal, seems impossible. A United States postal official, however, thought otherwise and wrote to the bureau asking that a way be found to decipher such charred records. By a new process legible photographs of both sides of his records were finished without the use of a camera. Such by-products give glimpses of the thousand and one useful services of this national bureau of science.

Here is an experimental paper mill where the paper wizards take any fibrous material and beat, boil, pour, and roll it into paper. Their tests enable them to reproduce the formula from which any paper was made. Paper when judged by guesswork was felt with the fingers and tongue, torn, crumpled, even chewed, and the paper man was supposedly able to guess its quality. The bureau now measures every factor—fiber, sizing, mineral, bursting strength, weight, and thickness, as well as folding durability. The bureau's paper mill experts made a paper 50 per cent stronger than any hitherto recorded. They try out experiments of many kinds, making paper from banana trees, cornstalks, sawdust, rice straw, and even once made for a surgical experiment some paper of the fibers of human muscle tissue.

In the bureau's china shop, porcelain making in all its phases is studied and improved. Here American clays were mixed, analyzed, dried, heat treated and chemically modified until they could duplicate the performance of foreign clays. Glazes were developed and their recipes given to the industry. The porcelain expert with his microscope even devised technique to reproduce the composition formula and firing temperature of any glaze from a sample as small as a pinhead.

Sugar is a national staple. The Bureau of Standards check tests every incoming cargo and helps Uncle Sam

collect exact customs duty based on sugar content in imported raw sugars. The sugar is not tested by sweetness test nor by chemical analysis, but by an almost magical means. Sugar dissolved in water twists waves of light passing through it. The angle of the twist for pure sugar is known; the actual twist caused by any raw sugar is a measure of its purity. The bureau experts studying every factor affecting precise measurement, recently corrected the 100 per cent point of the sugar scale used throughout the world. At once Uncle Sam's revenues at the ports thereby increased $70,000 per year. The bureau has made sugars from almost every conceivable source, fucose from seaweed, raffinose from cottonseed meal, arabinose from dahlias and artichokes, mannose from ivory nuts, and so on, and has shown that levulose, sweetest of the sugar group, may be produced at moderate cost for the diet of the diabetic, to whom ordinary sugar is fatal.

At every turn some interesting marvel is found. One hardly looks for a great magnet in a sugar laboratory yet here is one, said to be the strongest in existence, which twists a light beam just like the sugar solution. This magnet will draw nails from the hand a foot away, and the closed fist, holding a nail, can be turned only with great effort. Magneto-optics is the long name for the study of the strange effects of magnetism on light, for magnetism not only twists but actually lengthens or shortens the light waves themselves.

When a leather shortage impended, experts sought new sources of leather and turned the shark to good account. Sharkskin, tanned and tested, was found suited to the manifold uses of leather. The same experts studied the wear of shoes, the quality of leather, and turned the results over to the American shoemakers. A walking machine was invented to imitate and speed up the wearing out of sole leather by walking. The machine gives the same wear in a few hours as months of service would give. Whole hides

are cut into soles after marking the source of each piece, and the durability of every sole determined. Thus the American leather and shoe industry has been given the exact strength of the leather from every point on the hide.

Extremes meet and diverse problems depend for solution on simple facts scientifically applied. From teeth filling to nonchipping enameled kitchenware is not so far, for the same experts and the same problem are involved in both. If metal and glaze expand or contract differently with heat and cold, the glaze peels off; if tooth and amalgam expand and contract differently, the filling works loose. At dinner this happens when we close the meal with hot coffee and ice cream. Research on these two problems requiring the microscopic measurement of just how much material expands with heat resulted in kitchen economy and mouth comfort to the American people.

Mounted on an automobile ready for the road is a wonderful piece of mechanism which makes an automatic and graphic record of the performance of an automobile in full road service. It records measured data for 16 items of automobile performance which the designer needs to develop a perfect power system. Thus a new era opens for designer and builder by enabling them to use the measured performance charts of every sort of road condition, car operation, wind, and grade. The perfect car of the future is being created by such tests.

In a far corner of the grounds is a building devoted to power plants for automobiles, aircraft, and other autocraft. New apparatus and methods of test are devised. For example, experimental researches on automobile brake linings with new methods and apparatus so improved their efficiency that $10,000,000 a year are now saved on replacements of brake linings alone.

In the new altitude laboratory, the engines of Navy Airship ZR-1 were tested under simulated service conditions duplicating flight. The room was reduced to partial

vacuum as thin as the air 6 miles above the earth's surface and to a temperature 27 degrees below zero. Power output and running conditions were determined, so that the pilots of these giant airships have advance knowledge of how their engines will behave under the conditions of pressure and temperature which will be encountered in actual flight.

A visit to the electrical laboratories is full of interest. Here radium is certified, lamps tested, electric meters and devices are certified, electrical standards investigated, and experiments in radio made. Electricity has advanced for a half century largely from improved measurements. The bureau has devoted years to perfecting its electrical standards. These researches are appreciated only by the specialist, but their benefits are felt by everybody.

Here is a tiny tube of radium—the national standard of radioactivity certified in Vienna, Paris, and London. Its atoms exploding, shoot off rays which heal cancer. This pinch of radium dust or salt electrifies anything within range, disrupts the atoms of the air, and emits rays which pass through the solid walls of the laboratory. The sale of radium for the American medical profession and for scientific purposes is now based on the bureau's certificates of measured radioactive strength.

The magic of radio is used in most practical ways. The bureau sends a narrow shaft of radio waves like a searchlight down Chesapeake Bay from Washington to Norfolk. Ships crossing this narrow beam can tell their location and follow the path of the radio beam in a fog or on a dark night. It needs no dream to visualize future navigation on the seven seas without sextant or magnetic compass, but with a network of slender directed beams of radio making the trackless water as easy to navigate as the streets of a city.

The volt is the unit of electrical pressure. It is measured by the average voltage of 20 electric cells, the best of several hundred kept at constant temperature in stirred oil kept within a hundredth of a degree. Years of research made it

possible to keep their value constant to a few parts in a million per year. Nearby are the apparatus for determining the unit of electrical resistance and the unit of current. In fixing the unit of electrical quantity, scientists from England, France, and Germany joined in daily experiments at the bureau with the result that the value is now known and fixed to eight decimal places—the scientific mode of rating precision.

The bureau's safety codes are, in a sense, a permanent nation-wide life-saving service, and they at the same time promote efficiency in industry. They cover the hazards from lightning, electricity, gas, aeronautics, elevators, logging, industrial head and eye hazards, and have won their way on merit into laws, regulations, and industrial practice. It was found that 75 per cent of fatal elevator accidents were avoidable. Many elevators were tested and safety interlocks studied under full service conditions. The bureau report to the city of Baltimore is a basis for other city governments.

The Bureau of Standards has three "Caves of the Winds" where hurricanes are made to order. The speed of a typhoon must be doubled to equal their performance. Models of airplanes, flying boats, dirigibles, motor cars, bombs, projectiles—anything which must pass through the air with speed, precision, or efficiency—are placed in the teeth of a gale the speed of which is known. The force required to keep them still is weighed and the air resistance measured.

The model of a famous automobile was placed in a 60-mile wind in one of these tunnels. The effect was the same as if the car itself had sped through the air at that speed. The startling result showed that 30 horsepower was used merely to overcome air resistance at that speed. Efficient stream-line design is just beginning for motor cars. Alexander Graham Bell brought here his hydrodrome, and improvements suggested by the test were made before his famous 70-mile-an-hour trip with this extraordinary watercraft.

Experts can not travel with a projectile shot through the air and study its behavior and the effect of the air upon it. But the Bureau of Standards can do practically the equivalent. Placed in an experimental wind tunnel, the projectile is exposed to wind speeds 10 times those of the swiftest hurricane. With wind blowing a thousand miles an hour past the projectile, almost identical conditions of a gun-fired shot are duplicated. Even the strong compression wave in front of the projectile may be studied.

Despite the explosive materials and dangerous chemicals handled, serious accidents have been rare. In the accident of September 20, 1923, four men lost their lives, making a total of seven fatalities since the establishment of the bureau, 22 years ago.

The Bureau of Standards is laying a basis for its great work in the future in ways unknown to the public. In an underground laboratory is an improved ultramicrometer, a thousand times more sensitive than the precision gage makers apparatus. This instrument measures length changes as small as the billionth of an inch, and is so far ahead of practical uses to-day that it may wait for years before industry needs or can use such inconceivable delicacy and perfection of length measurement. When men can measure the heat of the stars, they are making truth stranger than fiction. When they harness the hurricane, they are making magic real. When they can steer the mariner with beams of radio, they are outdoing the Arabian Nights. This is why the National Bureau of Standards is a house of wonders.

XIX

THE BUREAU OF THE CENSUS

EVERY ten years one person out of about every thousand in the population of the United States stops to count all of the others, and the tabulating of this great counting of heads is the principal work of the Census Bureau. With the population of the country past the 100,000,000 mark in the Fourteenth Census, taken in 1920, over 90,000 census enumerators were employed. After these did the work in the field, making a house-to-house canvass of every habitation from palace or fashionable apartment house to tenement and improvised shack, a numerous staff digested the data obtained. The peak of this labor comes a few months after the taking of each census, and for the Fourteenth Census about 6,300 employees were engaged in this handling of the facts the enumerators had gathered. By 1923 this force had dwindled to a few less than 800, representing approximately the permanent organization of the bureau which handles the publishing of the statistical data between census periods, but under the leadership of Director William M. Steuart this staff is ready for expansion to meet any special task which may be imposed by Congress and to prepare for the Fifteenth Census.

The census enumerator is an inquisitive person. He is armed with a list of questions carefully worked out in advance and it is his duty to obtain answers to these inquiries from every one in his territory. Much effort and skill are expended in drafting the questions. When it is realized that more than 100,000,000 people are to be counted, and that every question and every answer is to be multiplied by that

large figure, it will be seen that the schedules must be as meager as is consistent with a full report.

For the Thirteenth Census the population schedule contained 33 questions. For the Fourteenth Census it was cut down to 29. This saved 400,000,000 questions and the same number of answers. The straight population figures are regarded as the most important, but there are other inquiries such as those having to do with agriculture, manufactures, and finances. The population schedule goes to everybody. As there are more farmers in the country than workers in any other industry, the next most important schedule is that dealing with farm questions. This, too, has been simplified. In the Thirteenth Census 600 questions were propounded. In the Fourteenth there were 75 general questions embodying a total of about 400 items.

The changes made in the population schedule indicate what proves from experience to be important. The questions omitted were: Number of years of existing marriage; mother of how many children; number born; number now living; whether out of work at the census period; number of weeks unemployed during the year, and whether a veteran of the Army or Navy of the Union or Confederate States. Additional information sought related to data on the blind, deaf and dumb, and to naturalization. Simplification was effected in the farm schedule and one new question added, concerning mortgages on homes. Separate schedules were used for livestock not on farms or ranges, for irrigation and drainage inquiries.

The census is primarily a matter of enumerating the population of the country for the purpose of apportioning representation in Congress. The United States was the first nation having an absolutely representative form of government and therefore it became necessary to have an exact count of the people to determine the number of Representatives in Congress. Upon the count of population may depend the political complexion of Congress.

It required 92,819 persons to gather the statistics of population and agriculture in the Fourteenth Census. The census enumerators work like an army under commanders. In this census each enumerator, at the end of his day's work, made his report to the supervisor of his district. In turn, each supervisor sent in a daily report to the bureau at Washington. Great care is taken by the supervisors to insure that the enumerating is carefully and faithfully done. No enumerator can work successfully the trick of the small boy employed to distribute handbills on doorsteps who takes his pay but throws all the handbills away. The supervisors keep careful check and make certain that the enumerator has called at each house in his territory and obtained the answers to the questions. The cost of the Fourteenth Census inquiries was approximately $20,100,000, or 19 cents per capita. The Thirteenth Census inquiries cost approximately $14,600,000, or 16 cents per capita. Of the amount expended, $7,618,000 was paid to enumerators.

The law requires that every person shall make true and faithful answers to the enumerator and provides a fine and imprisonment for willful failure to give such answers. At the same time it is equally careful to insure the people that their confidence shall be protected. The enumerator is required to hold in confidence everything he learns in the discharge of his duties and a jail sentence stares him in the face if he divulges any of the information he obtains. No matter if he unearths the biggest tax dodger in the country, or the most notorious criminal in the land, his lips must be sealed forever. Enumerators have many curious experiences. Among illiterate people in city slums and remote regions, they often are looked upon with the greatest suspicion and it takes much tact, and sometimes the assistance of local authorities, to convince these people that the enumerators are not spies, revenue agents, or informers.

One of the things which the Census Bureau has to guard against is frequent attempts at padding the population lists.

In one census a negro enumerator in Mississippi made returns for all the farms in his district and then duplicated these returns for every member of the family on each farm. This padding was for the purpose of increasing his own pay. In another case a Maryland enumerator visited the cemeteries in his district and returned the names upon the tombstones. Sometimes ambitious cities engage in campaigns of census padding.

Bitter disappointments often follow the announcement of a census. The chambers of commerce and the real estate dealers of cities, particularly thriving ones of the west, issue literature giving glowing accounts of wealth and population. Their figures express hopes more often than facts and when the cold, impersonal statistics gathered by Uncle Sam are announced there is a sharp anticlimax. At every census several of these cities exclaim in dismay at the figures reported and charge fraud or inaccuracy and demand recounts. If there actually is reason to believe that the count is inaccurate or fraudulent, it is possible to obtain a recount, but that is unusual. The town must grow in actual fact before it can grow on the Government records.

But for the invention of machines capable of arranging and adding figures more accurately and rapidly than can be done by the human hand and brain, the taking of a Federal census under present conditions would be utterly impracticable. It would require so long to tabulate, digest, and publish the returns that it would be time for a new census before the one in hand was completed. Electricity has solved the problem of digesting the returns which come from the enumerators in the field. Prior to the Eleventh Census all returns were tabulated by hand, a long, tedious task even when the population was much smaller. In 1890 the electrical punching and tabulating machines came into use, having been invented by a former employee of the bureau. Since that time there has been a steady advance in the ingenuity of the machinery. Nearly all the improvements

have been invented in the bureau by employees who, from experience in operating the machines, discern new short cuts and better methods.

At the time of the Twelfth Census, the first handled by the electrical machines, former Director Merriam said that if the statistics had been tabulated by the old hand method it would have required the time of a hundred clerks nearly twelve years. He estimated that even the earliest electrical machinery did the work in one-tenth of the time, at one-third of the cost, and with a greater degree of accuracy than could be accomplished by hand. The machines saved the Government $5,000,000 in the taking of that census and this saving has become progressively greater with each decade.

The machinery is remarkable for its ingenuity. Symbols are prepared which represent the various items of data as extracted from the schedules. Editors take the schedules and insert the symbols over the item in the various columns and form divisions. A separate card is devoted to each person in the United States and on each of them is set down the facts relating to sex, age, race, birthplace, etc., and a machine is used to punch holes through the symbols which tell the story of each individual. The average daily output of each machine is 800 cards.

After the cards are punched they are fed into what is known as the automatic tabulating machine. This machine carries the cards through the tabulating mechanism, one by one, at the rate of 400 cards a minute and registers any number of facts, up to 60, that appear on any card. As the cards pass through the machine electrical contacts are made through the holes and in this way each item is registered and the totals are printed on a result sheet, having a capacity of several readings. If a card has been incorrectly punched, it is rejected by the machine and none of the facts on it is recorded.

One may get a striking example of the costliness of small errors from a statement made by former Director Durand.

In the case of farm statistics the enumerator sometimes makes the mistake of dropping a cipher in reporting the number of bushels of grain raised on a given farm. To follow up all these errors and check off the obvious ones after the method of the Twelfth Census would have cost several hundred thousand dollars. By use of typewriter-adding machines such errors in a column of figures were so patent that the trained eye detected them without the necessity of editing the individual schedules.

As the returns from each city and town and State are tabulated, the bureau makes an announcement of the result. These announcements are placed in the hands of the correspondents of newspapers and press associations and flashed to the papers most interested. In the first eight or ten months there are from one to a dozen announcements a day, and finally all the data are published in large volumes. There are separate volumes on population, on the census of manufactures, on agricultural statistics, and on several other general classifications. These are the final words of the Government on the number of people in the nation and on their productive and business activities.

When the Census Bureau finishes the decennial inquiry it undertakes other lines of work during the intervening years, such as annual statistics of the financial and municipal activities of cities having a population of 30,000 or more, monthly statistics concerning the ginning, consumption, and stocks of cotton, and periodical statistics on stocks of leaf tobacco held. Occasionally Congress, by special resolution, will instruct the bureau to gather data on some special subject, legislation concerning which is pending. One of the greatest special jobs in cooperation with the War Department was the planning and executing of the draft for the citizen army in the World War.

Annual work of the bureau includes the gathering of data on births and deaths in the registration area of the country and information concerning forest products. Every two

years the bureau makes an investigation of all manufacturing industries. It also reports on the principal causes of death, which guide the public in efforts against disease. In the table of principal causes of death, accident, murder, and suicide have their places. The bureau issues a weekly health index showing conditions throughout the country.

In addition to the investigations mentioned, the bureau collects and publishes at frequent intervals statistics concerning production, distribution, and consumption of cotton, cottonseed, and cottonseed products; tobacco stocks; electrical industries; wealth, debt, and taxation; institutional population; and marriage and divorce. Special inquiries were also made concerning animal and vegetable fats and oils; hides, skins, and leather; boots and shoes; active and idle wool machinery; activity in the cotton-spinning industry; manufacture and sale of farm equipment; clay and refractory products, and for numerous other products for the key industries of the country. These statistics are published monthly in the Survey of Current Business which is generally accepted by manufacturers and business men as the most reliable index of the industrial and business activities of the country that has ever been published.

The history of census taking in the United States is an interesting one. The Government has conducted these inquiries fourteen times since the foundation of the Republic and in doing so has spent some $98,000,000. It is a far cry from the 17 marshals and 200 assistants who gathered and prepared the returns of the First Census, to the 92,819 supervisors, clerks, enumerators, and other field employees and the 6,300 office employees of the 1920 census. The latter also involved the printing and distribution of 25,000,000 schedules of questions; the filling out of schedules for 107,500,000 people, 6,500,000 farms, 450,000 manufacturing establishments, and 22,000 mining and quarrying enterprises; the examination, checking, and editing of the schedules when received; the punching of 300,000,000 tabula-

tion cards; the running of the equivalent of over 2,500,000,000 cards through electrical sorting and tabulating machines; the computation of about half a million percentages, averages, and other rates; the preparation of elaborate manuscript tables; and, finally, the printing and publication of 11 quarto volumes averaging about a thousand pages each.

The 1920 census showed the center of population to be in a field 1.9 miles west of the town of Whitehall, Ind. In 1910 the center had been established in a lumber yard in Bloomington, Ind. In ten years the western movement from Bloomington was 9.8 miles. In 1800 the center of population was eighteen miles west of Baltimore. Thence it moved successively westward to spots approximately located at Woodstock, Va., Mooresfield, W. Va., Clarksburg, W. Va., Chillicothe, Ohio, Cincinnati, Columbus and Bloomington.

There was much disappointment over the showing of the First Census, which cost $44,000. Many thought it made the population too small, on the ground that it was supposed to be for purposes of taxation. Thomas Jefferson unhesitatingly expressed his belief that it was erroneous, and, as Secretary of State, notified representatives of the United States abroad that the returns were far short of the truth. Doubtless he took pains to create in foreign lands an impression of a large American population as a protective measure against aggressive nations which might think the new Republic weak. Subsequent events indicate that the First Census was an accurate one and that the trouble lay in the overestimates of colonial populations which had been made before. One of the most interesting publications ever issued by the Government is that containing a list of the heads of families as disclosed by the First Census in 1790. This work was undertaken some years ago and is a publication of surpassing interest to genealogists.

XX

THE BUREAU OF FISHERIES

In the Bureau of Fisheries the Federal Government has a national fisherman who reverses the usual practice of disciples of Izaak Walton and puts more fishes into the water than he takes out. Finned creatures of every variety native to American waters come under his charge, as well as the various other forms of marine life. No function which could assist in propagation, preservation, and wise utilization of the products of American waters is neglected. This national fisherman not only enriches the rivers, lakes, and surrounding sea by planting millions of new fishes annually, but maintains a fish doctor to study their well-being. He then counsels American fishermen of both commercial and sporting groups as to how best to catch and use the wealth of the waters.

The oyster is one of the most prolific of marine animals, a single large female emitting millions of eggs in a season, but it is subject to many perils at all stages of its life. The young are very minute, free-swimming animals wholly unlike the adult and are killed in myriads by too much or too little salt in the water, low temperatures, other marine life that preys on them, trade wastes and water pollutions, and particularly by falling on unsuitable bottom at the stage when they are ready to settle down and assume the adult form. Later they are opened and eaten by starfish, have holes drilled in their shells by marine snails seeking the flesh inside, are crunched into fragments by drumfish and other fishes which feed upon them, and are buried by mud carried to the

beds by freshets or streams. All of these phases of the oyster's existence are studied by the bureau.

An important conservation effected by the bureau is the rescue of young fishes left stranded on the recession of the waters of the Mississippi River after its annual flood stages. In 1923, 140,000,000 were taken from places in which they would have been killed by the drying up or freezing of the waters and returned to the safety of the main stream. Not only are these fish saved but many of them are made to serve as aids in the restoration and conservation of the pearl mussels of the river, which constitute the raw material of the American pearl-button industry. In their early stages these mussels are helpless parasites on the gills or fins of certain species of fishes and a number of years ago the investigations of the bureau showed that this necessary parasitism could be artificially induced. Before the rescued fishes are liberated they are placed in tubs of water and caused to become inoculated with large numbers of larval mussels, which, after developing on the fish, are dropped automatically at the suitable stage of development and commence their independent life on the bottom. Between 2,000,000 and 3,000,000 of these little mollusks are so liberated annually.

Fishes and other aquatic animals are subject to diseases like land animals, and both in a state of nature and in hatcheries are often visited by epidemics of high mortality. The bureau has a pathologist who studies these things and suggests remedies, but the field of the fish doctor is vast and almost untrodden.

As measured by economic standards and immediate needs the most important of the bureau's activities are those directed to the propagation of the five species of Pacific salmon, which furnish the raw material for the extensive salmon canning industry in the Pacific Coast States and particularly in Alaska. All of these salmon have the habit of spending most of their lives in the sea and running into

fresh-water streams and lakes to spawn, after which the fish of both sexes die. Each generation is exterminated after once providing successors. Some of these fish run hundreds of miles upstream in search of spawning grounds, surmounting almost incredible obstacles under the spur of their breeding instinct. The young fish hatched from eggs deposited in gravel beds in lakes and streams drop down the rivers to the sea and complete the cycle of their lives by returning to spawn in the streams in which they were hatched after a period of from 2 to 5 or 6 years, according to the species and the locality. This concentration of each entire generation within the narrow confines of the streams during a period of a few weeks or months makes them particularly vulnerable to the fisheries and has resulted in their practical economic extermination in some places and grave decrease in their numbers everywhere.

For a number of years the Bureau of Fisheries has been studying these salmon, by marking the young fish liberated from the hatcheries and tagging adults to determine from the recapture of these individuals in the fisheries, later, the facts of their migrations, distribution, mortality, intensity of the fishery, and the practical results of fish culture. In several localities actual counts have been made, year after year, of the number of fish escaping the fisheries and passing to the spawning grounds. Many facts in their life histories also have been determined by a study of the markings on the scales.

As in the case of most of the commercial fisheries, the Pacific salmon artificially produced are nearly all planted in waters to which they are indigenous, but at various times a few have been transplanted to the Atlantic coast and as a result a small run of humpback salmon has been established in the waters of eastern Maine. A number of years ago a similar experiment in acclimatization by the bureau resulted in the introduction of the Atlantic shad and striped bass on the Pacific coast where they are now so abundant that car-

loads of the shad are shipped to the east each year to supply the deficiency in the markets created by the depletion of the species in its native waters.

These investigations, like similar ones of other fishes, are made for the purpose of establishing facts on which to base rational conservation measures. The bureau is charged with the enforcement of the fishery laws in Alaska, but as they are obsolete and inadequate to meet present conditions, particularly in respect to the salmon, it has been necessary to meet an emergency pending the action of Congress, by establishing fishery reservations under Executive order and controlling the situation through departmental regulations. The Commissioner of the Bureau of Fisheries, Henry O'Malley, is particularly interested in the development of these reservations under proper Government control so as to perpetuate them for future generations.

Fishes like the trout and bass, which are prized primarily for sport and but secondarily as food, are distributed widely by the bureau to individuals, clubs, and State governments for stocking interior waters. About 12,000 applications are filled annually in the course of which the bureau's five specially equipped railroad cars travel about 70,000 miles and special messengers in baggage and express cars about 350,000 miles. During 1923 the bureau operated 37 main stations and 32 auxiliaries in 33 States and Alaska, and fishes were furnished to every State and several foreign countries.

Another phase of scientific work is concerned with the technology of the fisheries, the problems encountered in catching, preserving, utilizing, and shipping the products of the waters. For this purpose it maintains a well-equipped laboratory in Washington and a small field laboratory at San Pedro, Calif.

For several years past the bureau has produced and distributed approximately 5,000,000,000 eggs and fishes annually, and of these from about 3,000,000,000 to 3,500,000,000 were fry and fingerlings, little fish varying from less than

an inch to 4 or 5 inches in length. The remainder were eggs, some of which were planted in an advanced stage of development but before hatching, and others were supplied to various State fish commissions who hatched them and planted the resulting young fish. Upward of 1,000,000,000 each of flounders and cod were planted on the coast of New England, over 350,000,000 whitefish in the Great Lakes, and approximately 167,000,000 salmon in the streams of the Pacific Coast States and Alaska.

The bureau maintains a laboratory and experiment station at Fairport, Iowa, where mussel-culture methods were developed and where other investigations and experiments relating to the fisheries of the Mississippi Valley are conducted. It also has marine biological laboratories at Woods Hole, Mass.; Beaufort, N. C.; and Key West, Fla.; and it has several vesse s for research work in coastal waters and far at sea. The steamer *Albatross* has conducted biological and physical investigations of the sea over a large part of the Pacific Ocean and the western Atlantic, and has contributed largely to knowledge of oceanography and marine fisheries. The scientific work of the bureau is carried on in part at the laboratories, but very largely in the field in all parts of the country.

The statistical work of the bureau is intended to serve both economic and biological ends, to inform the industry of its condition and growth tendencies, and to furnish a body of data for the detection of threatened depletion of the fish supply. The first value of the fishery products of the United States is approximately $80,000,000 annually, and this is vastly increased by the work which is performed on them to prepare them for consumption, canning, salting, smoking, freezing, and dressing, in addition to transportation. Complete canvass of the fisheries, details of the catch, investment, and employment, are made at intervals of about five years. Monthly and annual reports of the fish landed at Boston and Gloucester, Mass.; Portland, Me.; and Seattle,

Wash., are issued promptly. An annual report on canned fishery products and by-products and monthly bulletins on cold-storage holdings of fish are published regularly.

In the enforcement of the laws and regulations in 1923 the bureau employed eight of its own vessels and 28 small boats and launches chartered for varying periods. The total force employed in the fisheries protection service was 113 men, including the crews of the vessels, a very small number considering the vast coast line and the wide distribution and the economic value of the fisheries which are to be conserved. The service is arduous and often dangerous. The fisheries of Alaska have been its greatest resource and in a single year have yielded a value about seven times the original purchase price of the Territory. Since 1867, when the United States assumed possession, the total value of the fishery products has been considerably in excess of $500,000,000.

One of the few financially productive businesses in which the United States Government is engaged is the management, through the Bureau of Fisheries, of the seal and fox herds of the Pribilof Islands. These islands were originally unoccupied by human beings, but they are now inhabited by about 325 Aleuts, whose ancestors were originally carried thence by the Russians, 15 white employees of the bureau, and a small number of men operating the naval radio stations. The reason for this population is that a great herd of valuable fur seals annually resort to the St. George and St. Paul Islands of this group for breeding purposes. This herd was formerly of vast extent, but under the Russian administration and the leasing system which the United States followed until 1910, aggravated by the uncontrolled killing of the animals at sea, the number was reduced to about 132,000. Since the Government assumed direct control in 1910, under more conservative management and with the abolition of killing at sea by treaty with Great Britain, Japan, and Russia, whose nationals were engaged in the practice, the herd has been increased to about 653,000 individuals of all ages.

XXI

THE DEPARTMENT OF LABOR

More than one-third of the contents of the weekly pay envelope of the average American workingman is spent for food. Until a few years ago such information as this was practically unknown; indeed, it was difficult to obtain any reliable data on the affairs of the worker.

Less than a century ago, workingmen who sought to organize labor unions to better their living conditions were arrested as conspirators against the common welfare. To-day a Department of Labor is one of the ten great executive departments of the Government of the United States, and the Secretary of Labor sits in the President's Cabinet. The first definite move toward giving labor official recognition in the Government was made by a conference of labor leaders held at Louisville, Ky., in 1865. The idea then was generally regarded as preposterous. In 1869, the State of Massachusetts, yielding to the agitation which had begun, established a Bureau of Statistics of Labor. It was not until 1884 that a Federal Bureau of Labor finally was established by law in the Department of the Interior. In 1903 a Department of Commerce and Labor was created and in 1913 the present department was established as a full-fledged executive department devoted wholly to labor. It has since functioned in guarding the interests of the American worker and compiling data of value to him.

One of the most interesting inquiries undertaken by the Bureau of Labor Statistics of the department is that which shows how the average American workingman's family

spends its income. More than 12,000 families actually were visited by the agents of the bureau and the family purchases carefully studied. The average family consists of five persons and no family was studied having an income of more than $2,500 a year. The report showed a budget as follows: Food, 38.2 per cent of the whole expenditure; clothing, 16.6 per cent; rent, 17.4 per cent; fuel and light, 5.3 per cent; furniture and house furnishings, 5.1 per cent; and miscellaneous, which includes doctors' bills, amusements, and savings, 21.3 per cent. This takes care of 99.9 per cent, leaving one-tenth of 1 per cent indefinitely placed. The experts say that there may be differences in the desires and the thrift of various families, but that by repeating the examination over and over again, the same result would be obtained as the average throughout the country.

The bureau constantly is engaged in the preparation of reports to show the cost of living. The main purpose of such figures is to have at hand at all times data to show what wages a workingman should have to enable him to live comfortably and decently. In wage disputes, these figures are offered as evidence of what a family requires. There are two price reports—one on wholesale and one on retail prices. The figures are gathered with the greatest care to insure accuracy.

The quotations used in the wholesale reports are obtained, as far as possible, for the various commodities in their primary markets. Special agents and clerks copy these figures from the original sources wherever found, and under the direction of experts compile them at the office of the bureau.

These statistics of wholesale prices enable one to trace price changes in more than 400 important commodities in the principal primary markets of the country, while the relative prices and index numbers constructed from the money prices show the general trend of prices from 1890 to date. The wholesale index numbers are of chief value in studying the principles governing price fluctuations.

In the earlier reports the retail price data compiled by the bureau covered only food prices; but at present reports are published presenting for the most important industrial cities the retail prices of the principal articles of food, the weight and prices of wheat bread, and the retail prices of important articles of drygoods, of anthracite and bituminous coal, and of gas for household use.

These index numbers of all food combined are made from weighted aggregates of actual money prices in order that each commodity may have an influence equal only to its relative importance in the consumption of the average family, and the year 1913 is used as the base. From January, 1913, to December, 1920, 22 articles of food were used in computing the cost of food, but beginning with January, 1921, 43 articles have been used. Data are furnished to the bureau by approximately 1,500 retail stores, 200 bakeries, 230 retail coal dealers, 80 gas companies, and 225 drygoods companies. This information is given by the dealers voluntarily.

In the case of food, the retail dealers who furnish the information are selected through personal visits of agents of the bureau, the dealers being largely owners of neighborhood and chain stores which are patronized by workingmen's families. After the agent has selected a store, arrangements are made for the merchant to send to the bureau a statement of prices of the various commodities on the fifteenth of each month thereafter.

The merchants who furnish the information covering drygoods were, in the first instance, visited personally by agents, after which the data were obtained by correspondence. The stores selected are large and representative department stores. The prices quoted are the regular retail prices. Coal dealers in each city are asked to quote prices on the kind of coal usually sold for household use. The prices are for coal delivered to consumers, but do not include charges for storing the coal in the cellars or coal bins when extra handling is necessary. Gas prices are quoted quarterly, for the fifteenth

of March, May, September, and December of each year, the data being furnished by the gas companies. All of the work of tabulating and analyzing retail prices is done in the office of the bureau.

The bureau maintains a constant study and publishes a series of reports on wages and hours of labor in all industries. Data are reported on both union and nonunion workers. The statistics of hourly rates of wages and earnings and weekly hours of labor, showing as they do the differences in rates and hours from place to place, from time to time, from industry to industry, and from occupation to occupation, are used in many ways. In practically every important wage dispute they are consulted. Employers in making wage adjustments and employees' organizations in preparing wage scales make frequent use of them. Members of Congress require them in the consideration of tariff and other proposed legislation, and requests for the data are frequently made by other Federal departments and bureaus, State bureaus of labor, and wage-adjustment committees. Sometimes these calls upon the bureau necessitate special field investigations and the compilation of data on wages and hours of labor which do not appear in its regular publications.

Similarly, the bureau collects and publishes information on unemployment. The monthly statement of the volume of employment is collated from returns received from over 5,000 representative establishments in 43 manufacturing industries, and it is planned to increase the number of establishments reporting. This monthly statement shows the number of persons on the pay roll, the amount of the pay roll and comparisons with the preceding month of the same year and with the same month of the preceding year.

These monthly statements, besides giving a picture of the extent and trend of employment in the United States throw much light upon the seasonality and irregularity of employment in certain industries and show the necessity for

smoothing the employment curve by better organizing the labor market, securing orders long in advance, stabilizing demand, fitting together industries having different seasons of activity, and mitigating the results of extreme fashion fads. By watching the course of employment as shown in these statements, the employment manager can estimate the opportuneness of his labor policy. Furthermore, it has been observed that wage rates normally lag several months behind changes in amount of employment and that the buying power, which is a composite product of the volume of employment and wage rates, also lags somewhat behind employment. By following the course of employment, therefore, a business man can forecast approximately the buying power of the public and govern himself accordingly in his production of commodities or in his purchase of stock.

With the increase in the number of women in industry which took place during the war, it became obvious that the employment of women had become a national problem to be met with national standards. To fill this need the Women's Bureau was established in the Department of Labor. This bureau finds out what women are doing in industry; it studies the conditions under which they work; and it recommends certain standards for their most efficient and successful employment. If an employer wishes to know what standards other employers are establishing and what the best standards are for hours, wages, and working conditions for women, he can get this information from the Women's Bureau. If a woman worker desires to know what she should expect in the industry where she works, the bureau standards will tell her that; if a State seeks to regulate conditions for women, the bureau will investigate to find out what conditions are most in need of regulation and will show how such conditions are regulated in other States. The bureau studies the effect of laws regulating the employment of women to ascertain whether they are helpful or harmful. Its agents interview thousands of women in industry to find

out what problems they have to meet, whether they have dependents to support with their earnings, and how they manage to run their homes and to work in industry at the same time. It publishes reports and prepares exhibits of all sorts in which are presented both the human and the scientific aspect of the employment of women in industry, so that the information secured may be available and useful for all of the many groups who are interested in the wage-earning women of the United States.

One of the bureaus in the Department of Labor is older than the department itself. When the Children's Bureau was created in 1912, it was an innovation. It was the first public agency, not only in the United States but in the world, directed to consider as a whole the problems of childhood. Since then, not only our own States but foreign countries also have followed the example of the United States, forming bureaus whose first interest is the welfare of the child.

When the Children's Bureau began its work in the summer of 1912, under Miss Julia C. Lathrop, it had a yearly appropriation of only $25,640. Miss Lathrop had with this small amount the task of carrying out the purpose of the bureau—"To serve all children, to try to work out the standards of care and protection which shall give to every child his fair chance in the world." Since then the yearly appropriation of the bureau has increased steadily. The first child problem investigated was in the field of infant mortality in an attempt to discover the causes of the high death rate among babies during their first year of life. As a result of these investigations, national attention was directed to the effects of low earnings, poor housing, and artificial feeding of babies, in causing a high infant mortality rate. In order to instruct mothers in the best methods of caring for their children popular bulletins were issued which have surpassed in circulation many of the best sellers, more than a million copies having been distributed free or sold through the Government Printing Office in one year. Although this work by

the bureau and by other agencies bore fruit in a steady reduction of the baby death rate in the United States, the annual toll of babies, amounting to some 200,000, and the continued high death rate among mothers, led to the enactment of a law granting Federal aid to the States in promoting maternal and infant welfare, known as the Sheppard-Towner Act, passed by Congress November 23, 1921. It authorizes an annual appropriation of $1,240,000 for five years to be given to the various States accepting its provisions for use in educating mothers and promoting the health of children, through public health physicians, nurses, and clinics. The sum of $5,000 is granted outright to each State accepting, $5,000 additional being granted to each State matching this amount out of its own funds. The rest of the money is divided on a basis of population and also granted to States matching the Federal money with their own. This scheme of Federal aid had previously been applied in the case of good roads and vocational education, as well as in various projects of the Department of Agriculture. Another phase of the Children's Bureau work is its investigation of the problems of the child worker. In spite of the fact that the United States is the richest country in the world, census figures show that more than 1,000,000 children between 10 and 16 years of age are wage earners. A national child labor law passed in 1916 was administered by the bureau and helped to enforce fairly adequate standards for the protection of working children. This act and a second one were both declared unconstitutional, however, by the United States Supreme Court. Investigations by the bureau have shown that the lack of a national child labor law has thrown more young children into the labor market and has resulted in many cases in longer working hours for such children. A constitutional amendment permitting Congress to legislate on child labor has been urged to remedy this situation. The bureau is engaged also in a study of the special needs of the child who is dependent, neglected, or delinquent.

Investigations are made into the care of such children in institutions, in juvenile courts, in foster homes, with the purpose of developing standards through which these unfortunates may be saved for society and for themselves. Mothers' pensions, the unmarried mother, and juvenile courts are among the subjects covered by this phase of the bureau's work.

Workmen's compensation, industrial accidents and hygiene, conciliation and arbitration, court decisions affecting labor, foreign labor laws, vocational education, the effect of the war on labor, and various other subjects vital to the welfare of the American working man are studied.

The Bureau of Immigration has charge of the work of receiving aliens into the United States and of removing from the country those who enter illegally or who become criminals or public charges after they are admitted. Prior to the World War about 1,000,000 immigrants were admitted annually and frequently more than 5,000 arrived in one day at the port of New York alone. Fearing an almost unlimited flood of war stricken Europeans after the great conflict came to an end, Congress created the Dillingham percentage limit law under which the number of immigrants who may come from any country in a year is restricted to 3 per cent of the number of natives of such country who were in the United States at the time of the census of 1910. Before the war about 750,000 immigrants came from south and east Europe in an average year, but under the new law only 155,000 a year may come from these countries. On the other hand, nearly 200,000 may come from northwest Europe, which sent us only about 180,000 annually prior to the war.

Immigration from China, Japan, and other oriental countries, being prohibited or greatly limited by special laws or agreements, is not regulated under the quota law. The number of immigrants who may come from Canada, Mexico, and other countries of the New World is not restricted. All immigrants must meet the tests prescribed by the general

immigration law. In other words, they must be physically, mentally, and morally sound; must, in most cases, be able to read in English or some other language; must not come under contract to labor in the United States, and must believe in organized government.

A restrictive immigration law naturally results in efforts to break down or in some way to get around the barriers that have been erected. This was true of the Chinese exclusion law, and ever since 1882, when that act went into effect, the Chinese have showed considerable inventive genius in finding ways to evade it. Before a numerical limit was placed on European immigration, only the defective classes who could not be admitted resorted to this back-door method of gaining entry; but since the quota law went into effect, organized smuggling through Mexico, Canada, and Cuba has become a serious problem. At one time in 1923 there were 150 smuggled aliens in one Florida jail and not infrequently parties of from 10 to 25 are caught in the act of landing from small boats at remote places along the coast.

Approximately one person in every three in the United States is an immigrant or the child of an immigrant, but, under the restrictive law now in force, this percentage will decline. Under the new conditions, the inspectors are not rushed as they once were and more careful examinations now are made of each entrant. Whereas formerly only one immigrant out of a thousand was rejected, now four out of every hundred are turned back. From those who enter, a head tax of $8 is collected.

The law provides that no paupers may be admitted and each immigrant must possess sufficient money to support him while looking for a job. During a recent year $21,000,000 was brought into the country by immigrants, an average of $70 apiece. Five per cent of these had less than $50 each.

About two out of three of the immigrants coming to the United States come through the port of New York, where the great immigration station, Ellis Island, is maintained.

Of the 309,556 immigrants who came in 1922, 209,778 came through New York.

The hardest problem which the Immigration Service has to solve is that of enforcing the Chinese exclusion law. Sometimes the Chinese slip into the United States from Canada or Mexico in sealed freight cars, or even in the refrigerators of dining cars. At other times they come hidden in coal bunkers, chain lockers, forepeaks, and other secluded parts of ocean-going vessels. It is stated that many of the Chinese in the United States to-day have reached here in violation of the law.

A typical case of evasion of the law was that of a Chinaman who arrived at San Francisco accompanied by an alleged son. So well were they coached that on examining them the officers became satisfied that their claims were bona fide and instructions were given for their landing. If the Chinaman had been satisfied to perpetrate only two frauds and lay the basis for later similar operations, success would have attended him. As he started ashore one of the watchmen noticed something about him that excited the suspicion that he was carrying coaching letters, and a search of his person revealed the fact that he had consented to be the message bearer for a number of the detained Chinese, who, their cases being fraudulent, wished to get letters ashore to the smugglers interested in them, telling how they had testified in order that witnesses could be produced to corroborate them. A reexamination of this Chinaman showed that he and his son were not even members of the same family, and that their stories were manufactured out of whole cloth.

When an immigrant lands in the United States, if he be a steerage passenger, he must undergo a minute examination. Physicians who are specialists in diseases the victims of which are prohibited from entry, are stationed a distance of 25 feet apart, and the immigrants are marched past in single file. As they walk across the 25-foot space, each one 25 feet behind his predecessor, they are eyed minutely from head to foot

by the physicians, and if there is any reason whatever for suspecting the presence of any objectionable disease, the suspected alien is sent back for further observation and investigation.

Peace in industry is a condition precedent to prosperity in America as in other countries. Industrial strife means a loss to all, no matter how small the number of persons directly affected and no matter how unimportant the enterprise involved. Not only the welfare of the wage earner but the welfare of the employer and the welfare of the general public is affected when men quit work as the result of a controversy with their employers. The workers lose in wages and the employers in profits, while the public is deprived in whole or in part of the service to which it is entitled from the industry. In its task of safeguarding the welfare of the wage earner and in its duty to the country at large the Department of Labor, through the Division of Conciliation, directed by the Secretary of Labor, endeavors to preserve peace in industry.

It has been the policy of the department not to inject itself into labor disputes so long as the employers and employees are making progress toward reaching an agreement, unless requested to intervene by one of the parties to the dispute or by the public directly affected. The department has taken the position that the best settlement of any industrial controversy is that reached by the parties themselves without outside interference. Next in order of preference comes the settlement by mediation or conciliation and finally the settlement by arbitration, if both sides can agree to leave the decision to a third party.

When the Division of Conciliation began its work, 70 per cent of the disputes in which its intervention was sought had already reached the strike stage. Recently conditions have so improved and the services of the division have been so generally recognized that less than 30 per cent of the cases have reached the point where work was suspended.

The conciliation work has gradually become more and more a recognized factor in America's industrial life as experience has demonstrated the effectiveness of its mediation in avoiding strikes or in bringing about a quick settlement of disputes where work has already been suspended. Labor has discovered that it has a standing recognized by the Government whenever its demands are based on industrial and constitutional rights. Employers on the other hand have found that the department will protect them from unjust and unreasonable exactions. In almost all the cases where the conciliators have acted there has been found a fine spirit of cooperation on the part of both workers and employers.

One of the grievances recited in the Declaration of Independence was that the British Crown interfered with the naturalization of foreigners on this side of the Atlantic and, therefore, since the birth of the nation, naturalization has been an important function. During a typical year, 160,000 aliens were admitted to American citizenship, having lived here five years. This bestows on the wife and children of the admitted alien the same rights, thereby multiplying the number of new Americans.

A special act of Congress, passed during the war, gave first citizenship papers to 170,000 foreign-born soldiers who had entered the United States Army.

The Bureau of Naturalization, through its own agencies and in cooperation with civic and patriotic societies, assists in the education of the alien, enabling him to attend schools and learn the principles of American citizenship.

The Department of Labor also operates the United States Employment Service, an agency to assist workers in finding jobs and employers in finding workers. Offices are maintained in the principal cities and employee and employer are brought together without charge to either. This service assists farmers in obtaining harvest hands. It aids the department in compiling statistics of employment and unemployment.

XXII

THE SUPREME COURT

As the head of the American judicial system, possessed of powers which enable it to pass on the constitutionality of the acts of the President, Congress, and the States, and invested with a permanency which makes it independent of changing public opinion, the Supreme Court is in many respects the most powerful factor in the American political system and the greatest judicial organization in the world. Receiving appointment from the President, upon confirmation by the Senate, the nine justices of the Supreme Court pass beyond the power of either, except under a process of impeachment, in which the House must act as Grand Jury and the Senate as the Court of Impeachment. The judiciary of England is regarded as the best example of the supremacy of justice in Europe, but the highest English occupant of the bench must be removed by the King upon the request of Parliament. A justice of the Supreme Court of the United States can be removed for no other cause than "high crimes and misdemeanors," which have never been charged against any justice except Samuel Chase, who was impeached in 1804, but who was acquitted by the Senate in 1805. His impeachment grew out of political opinions held and expressed by him, and did not involve the integrity of the man. He was, however, also charged with tyrannical conduct in trials under the alien and sedition law.

An example of how a justice of the Supreme Court may continue in power, even after the whole country has turned its back upon him, is afforded by the experience of Chief

Justice Roger B. Taney, who handed down the Dred Scott decision, which in effect nationalized slavery. Taney continued to act as Chief Justice even through the administration of President Lincoln, although he was disliked by the northern people as only a man can be when he holds opinions against which a people are fighting a bitter war. As long as Charles Sumner continued in the Senate of the United States a bust of Taney was refused its appropriate place in the Supreme Court room.

Although groups of the people have frequently complained of decisions of the Supreme Court and have called into question its wisdom, its judgment, and its partisan bias, and although matters of such moment that their ultimate importance could never be measured in dollars and cents have been decided by a margin of one vote, no one has ever yet seriously called into question the integrity of the men who constitute the highest tribunal. Members of the court, in discussing the lack of unanimity which sometimes characterizes its decisions assert that it can not be expected that where popular and professional opinion is so nearly divided upon questions involved, the justices, selected from different parties and from remote sections of the Union, and sharing all of the infirmities and prejudices common to their fellow citizens, should be unanimous in their views upon constitutional questions.

Recently it has been suggested that the Constitution be amended to provide that none but unanimous or two-thirds-majority decisions shall set aside acts of Congress, but it is doubtful that such an amendment will be adopted for many years, if at all. The court strives for unanimity and gives its best powers to arrive at just decisions, its members recognizing the force of the old legal maxim that hard cases make bad law. It is regarded as inevitable that so complex a civilization as ours should produce questions so close that a jury of Solomons could scarcely agree.

In the early days when all the machinery of the United

States Government was new and untried, the Supreme Court occupied an especially interesting position. It was a year after the court was set up before the first case was docketed, but when cases began to come they raised many perplexing questions. The early justices realized what a heavy responsibility rested upon them, for they knew that posterity would quote their opinions as ruling precedents. John Marshall, the fourth Chief Justice, is regarded as the greatest interpreter of the Constitution. He was a product of the same times as the Constitution itself and knew the intent of the framers. When close questions arose he was able to determine how the hairs should be split for the good of the country and, in the opinion of some of his contemporaries, strained the precise letter of the great charter in some of his decisions. Such a policy of interpreting the Constitution was called latitudinarianism, but subsequent generations of statesmen and lawyers have agreed that, for the most part, Chief Justice Marshall's decisions strengthened rather than weakened the Constitution. In the youth of the Republic there were constant attempts to break down the Federal authority. John Marshall combated these through his decisions, with the result that he did much toward the preservation of the Union when its continued existence was in jeopardy. To-day the decisions of John Marshall are regarded by lawyers almost as sacred as the clauses of the Constitution itself, because both pointed in the same direction, that of the solidarity and permanence of the nation. Many a hot fight was engaged in by the old Chief Justice to win his points, but he never wavered. His term of 35 years was the longest served by any Chief Justice. John Rutledge, who served less than a year, had the shortest term.

The Supreme Court holds its annual sessions from October to June, with recesses at Thanksgiving, Christmas, and Easter, and meets at such other times as the consideration of cases which have been heard requires. When the court is in session its members go to the Capitol every day in the

week. The court convenes at noon. On Mondays its first business is the handing down of opinions. When this is finished the remainder of the week, until 4.30 Friday, is devoted to the arguing and hearing of cases. Saturday is set aside as consultation day. Its quarters are in the Capitol Building, the court room being across the hall from the robing room, and is the room which was formerly the Senate Chamber. Promptly upon the stroke of 12 a passageway across the corridor which leads from the House to the Senate is roped off with silken cords, and the court, headed by the Chief Justice, and followed by the others in the order of their appointment, marches out of the robing room, across the corridor, and into the court room. Here everybody arises while the crier announces the court and calls out his familiar "Oyez! Oyez!" and announces that the court is now in session and all persons having business before it should draw near and give attention. The justices sit at a high desk, the Chief Justice in the middle, and the others to his right and left in the order of their appointment. Their robes hang in the robing room in the same order that they march in, and they sit around the consultation table in their chambers in the same way.

The justices wear gowns of black silk or like material. When the court was organized, the question arose as to how its members should be dressed. Some thought they should wear the mortar-board cap of a scholar, some the garb of a Roman senator, some the attire of a priest, and others the wig and the gown of the English jurists. When Thomas Jefferson expressed his opinion on the subject he exclaimed: "For Heaven's sake discard the monstrous wig which makes the English judges look like rats peeping through bunches of oakum."

Under the law the justices of the Supreme Court may retire on full pay at the age of 70 if they have served 10 years. However, unless overtaken by infirmities which prevent their rendering efficient service any longer, they usually prefer to

work on. For instance, Justice Harlan was eligible to retire June 1, 1903. But he preferred to continue, and although the duties of a Supreme Court justice are arduous and trying, he was still in harness until his death in 1911, and had 34 years of honorable service on the bench of the Supreme Court. He took part in some of the most important decisions of the court in its entire history, and his 34 years of service is more than double the average service of a member of the court.

The case of Mr. Justice Moody presents an example of a member of the court who was retired before reaching the statutory retirement age. He became such a chronic sufferer from rheumatism that, although below the age limit, Congress, by special act, retired him on full pay. Justices Hunt and Pitney were retired in the same way for similar reasons.

The Supreme Court presents a notable personnel as now constituted. William Howard Taft, the tenth Chief Justice of the United States, sits with an Associate Justice, Mr. Van Devanter, whom he appointed. Mr. Taft came on the bench to fill the place of Chief Justice White whom he also appointed as Chief Justice. He is the first man to hold the two highest offices in the United States, those of President and Chief Justice. There are four justices appointed by President Harding, an unusually large number when it is considered that Mr. Harding was in office less than three years. The Harding appointees were Chief Justice Taft and Justices Sutherland, Butler, and Sanford.

Formerly the Supreme Court met at 12 and adjourned at 4 o'clock. The justices would withdraw one at a time to eat their lunch behind the scenes and the attorney addressing the court could often attune his speech to the rattle of the dishes, while perhaps the very justice to whom he was most anxious to address his argument was regaling himself with a dozen fried oysters. This practice has been discontinued and the plan adopted of adjourning for lunch and carrying the session further into the afternoon.

The procedure of the Supreme Court in the determination of the questions involved is an interesting one. To begin with, it hears the oral arguments of the attorneys in the case. An attorney who can deliver an effective speech before this court is an artist in his line. Usually the members apparently take little interest in what an attorney is saying, and to the spectator it would seem that the attorney might just as well omit his oral argument and trust to the briefs he had previously submitted. But if anyone thinks that the court is not paying attention, let him watch an attorney stray away from the points his argument is expected to cover or misquote a former decision of the court; he will at once discover that the court is taking mental note and is ready to remind the attorney of his error. Sometimes the court will hear the argument of a plaintiff in error and is persuaded that he had no case upon his own showing. Under such conditions it will advise the opposing attorney that he needs to make no argument. A humorous incident of this kind occurred years ago when the famous Matt Carpenter was the attorney for the plaintiff in error in a certain case. When the opposing attorney began to answer his speech, the court declared that it was unnecessary for him to speak further. The attorney was hard of hearing and did not understand the remark, when Matt Carpenter spoke up and said: "The court would rather give you the case than hear you talk." The justices are not without their sense of humor, even when on the bench. Some years ago a case involving a patent collar button was pending. While the attorney was engaged in arguing it, one of the justices asked him if he understood him to say that "if the button fell out of a man's shirt as he was dressing and rolled under the bed, the owner could recover it without swearing." The attorney replied that no such button was possible of invention.

After a case is argued in the Supreme Court, its members take the printed briefs to their homes and read them. There are a large number of these briefs to be read, and often a

single case involves a great amount of study if the members of the court are to become familiar with it.

Saturdays being set apart for conference days, the members of the court meet in the conference room and discuss the cases fully and freely. A friend of one of the justices once asked him what they did in the conference room. He replied that they fought like cats and dogs. Of course, this was overdrawing the picture, but the average justice is a man of great strength of mind and force of character, and, therefore, tenacious of his views; and it is not to be wondered that these discussions sometimes become heated and prolonged. After every justice has expressed his opinion as fully as he cares to, the Chief Justice calls the roll of the court, and each member votes upon the question of an adverse or a favorable decision. After this the Chief Justice assigns to the members of the court the cases upon which they are to write their opinions. Later these opinions are brought in by the members writing them and laid before the whole court. Here again they argue the case, criticize the opinion, and often amend it so much that it has little semblance to its original form.

The court again by a roll call votes upon the question of whether it shall be read as the opinion of the court or not. If there is a dissenting vote on any case, those who dissent arrange among themselves as to who shall write the dissenting opinion. Sometimes the grounds upon which different justices dissent vary, so that there may be one or more dissenting opinions handed down.

The days when opinions are handed down are trying ones for the newspaper correspondents who have to report them. There are a few justices who deliver their opinions in a clear and distinct tone of voice so that they are easily followed and their opinions reported without difficulty. On the other hand, there are some who speak so low and so much like boys in a hurry to get through with a lesson that it is next to impossible to hear them. The Supreme Court makes little provision for newspaper men, a practice entirely at variance

with that of the other branches of the Government. It is true that there are tables for the representatives of the press associations, but the other members of the corps of Washington correspondents must take their chances on two little benches which are filled up with tourists if the correspondents are not there on time.

When a lawyer is admitted to practice before the Supreme Court he signs his name in the official register. Lawyers applying for admission are introduced to the court by some member of the bar, and immediately after the formalities have been complied with they are able to begin their work.

There is perhaps no other body in the world which conducts its business in a more impressive way than the Supreme Court. With the exception of its gown, there is nothing to distinguish the court from any other body of American officials, but silence is so rigidly maintained that the atmosphere is one of dignity and solemnity. Visitors are admitted at all times, as long as there is room on the few benches outside the bar. Worn quill pens used in the Supreme Court room are sometimes given to visitors who prize them highly as souvenirs.

Contrary to a general impression, Supreme Court decisions are not printed by the Government Printing Office. A private job printing office does this work, and a handful of faithful workers, some of whom have been at the same task for nearly half a century, set up the decisions and print them. The greatest secrecy is observed concerning this printing job, but it is said that no printer is ever given a complete decision to set in type. Even though these men are trusted by reason of their long and faithful service, all temptation is removed by cutting the decision into small, disjointed parts which are set by different printers. There have been two or three important Supreme Court leaks with the effect of giving the persons having advance information a tremendous speculative advantage in the stock market, but these usually have been traced to others than printers. Every year greater care

is exercised in guarding the decisions, for vast sums of money and great commercial advantages hinge upon them. Thousands of dollars would be paid for advance information on some important antitrust law decision for, with an hour's notice, great fortunes could be made in the stock market.

There are often little touches of interest in the course of a day's sitting. When Chief Justice Fuller was still on the bench, he and Associate Justice Harlan were quite chummy. Upon one occasion Justice Harlan leaned over and whispered something to the Chief Justice, and they both began to laugh for all the world like two small boys in school having a hard battle to keep from laughing aloud.

Most of the cases before the Supreme Court arise from lower courts. No such case comes before the court unless what is known as a Federal question is involved. A mere theft or damage case could not ordinarily be appealed to the Supreme Court. But should there develop from even a minor case, some angle which, for instance, involved a denial of a man's right to trial by jury, or the right to the writ of habeas corpus, the case could come up, for a Federal question would be involved; that is, a question directly covered by the Constitution of the United States. Cases where interstate commerce is involved or where a Federal statute is infringed may be heard by the high court.

In a few cases the court has original jurisdiction; that is, a case may be brought directly before the body without first being passed upon by inferior tribunals. Principal among these are cases where ambassadors, ministers, and consuls of foreign countries are involved. Cases between States of the Union and cases between an individual and a State may also come directly here. In all other cases, the court's jurisdiction is appellate. Original cases have been very few, but the number of appellate cases annually increases in number. Prior to the Civil War there were never more than 350 cases on the court's docket, while to-day the number is over a thousand.

Suggestions have been made for a further limitation of cases which may be appealed to the court and for an enlargement of the membership. In recent years there has been a tendency to enact Federal laws to cover many ills. Each new Federal law breeds more cases to come before the Supreme Court and the congestion of the docket means heavy work for the justices.

The employees of the Supreme Court seldom change. They are men who have proved their value, and the court cares nothing whatever for patronage. The pages are an interesting lot of young fellows. They must wear knickerbockers as long as they continue to serve as such, and this often brings about the somewhat ludicrous situation of a full-fledged lawyer going around in boy's clothes. They come in when they are small boys and begin to read law immediately thereafter. By the time they are grown they are well advanced in law, and when they reach their majority are ready to be admitted to practice.

The Supreme Court has a higher standing in the public estimation to-day than it had at the beginning of its career. John Jay, the first Chief Justice, serving 1789 to 1796, retired from his high position to accept a political office. A governorship was then regarded as more desirable than a seat on the Supreme Bench. Justice Cushing once declined the Chief Justiceship on the ground that he preferred his position as Associate Justice to that of Chief Justice. Many interesting stories are told concerning members of the court. In the early days there was a famous boarding house in Washington where many members of the court lived. Upon one occasion they agreed that they would drink no wine at their meals except when it was raining. Chief Justice Marshall sent Associate Justice Story to the window one day to see if it were raining. Story reported that there was not a cloud to be seen. Marshall immediately assumed a judicial frame of mind and declared that as long as it was raining within the jurisdiction of the court they

were entitled to their wine, and that no hour ever passed that it did not rain somewhere in the United States. "Therefore," said he, "let us have our Madeira." When Justice Field was on the bench, the justices who sat on one side of the Chief Justice were Field, Gray, Brown, and White; those on the other side were Harlan, Brewer, Shiras, and Peckham. Those on the one side had no children while those on the other side had both children and grandchildren.

Justices of the Supreme Court sometimes change their minds. When the Pollock case, involving the constitutionality of the income-tax law, was first heard, the court refused to declare it unconstitutional. On the rehearing the vote stood five to four against the constitutionality of the law. It is known that between the two hearings some justice changed his mind, as the personnel of the court was the same. Who that justice was, and what his motives were, no outsider is able to say with authority. Upon another occasion, when the Hayes-Tilden presidential election was in dispute and it was decided to create an Electoral Commission to settle it, Justice Clifford ordered his secretary to write a letter announcing that under no circumstances would he accept a place on the commission. The next day he asked his secretary if he had sent the letter and received a negative reply, whereupon he ordered the letter destroyed and accepted a place on the commission. Justice Brewer, afterwards a member of the court, once declared that no one ever knew why Clifford changed his mind.

Politics, as a rule, plays little part in the naming of justices of the Supreme Court. The President, irrespective of the party he represents, seeks to appoint the best man available when a vacancy occurs. Chief Justice White, Mr. Taft's immediate predecessor, was recognized as one of the great Chief Justices. He was appointed Chief Justice by President Taft, a Republican, and the fact that Mr. White was a Democrat and had been a Confederate soldier did not weigh against his indisputable legal talents and profound

judicial capacity. Associate Justices Harlan and Lurton who sat on the bench at the same time, were soldiers on opposite sides in the Civil War, and, by a strange coincidence, happened to have exchanged shots during a battle in Kentucky. Fortunately, both were better lawyers than they were marksmen. When Justice Harlan sat on the Supreme Bench, his son sat as a member of the Interstate Commerce Commission. When Associate Justice Day was on the Supreme Bench, his son became a Federal judge in Ohio. Justice Day was a man of small stature; Judge Day, his son, is almost a giant. The story is told that one day the justice introduced his son to a colleague on the Supreme Bench. "Your son," said the justice, "seems to be a block off the old chip." Chief Justice Taft's father was Attorney General of the United States—the official who presents all Government cases to the court.

This great tribunal is a balance wheel in the governmental machine. It maintains its judicial poise while other departments of the Government are swayed by fluctuating gusts of popular opinion. Its duty, at all times and in all circumstances, is to uphold the Constitution as the supreme law of the land, and the exercise of this power is essential to the welfare of all the people.

XXIII

OTHER FEDERAL COURTS

THE judiciary of the United States, in addition to the Supreme Court, consists of 9 Circuit Courts of Appeals, 88 district courts, the Court of Claims, in which all claims against the Government are passed upon, and the Court of Customs Appeals, where the statutes relating to the customs laws are interpreted. These latter courts have jurisdiction in special matters provided for by acts of Congress. The Supreme Court, the Circuit Courts of Appeal, and the district courts have jurisdiction over general subjects—in short, over everything not specifically delegated to the special courts.

The Federal judicial system was entirely revamped in 1911 under an act to codify, revise, and amend the laws relating to the judiciary. The statutes under which the courts acted prior to that time covered over 9,000 sections. It was a great undertaking to get all of these together to eliminate their inconsistencies, and to boil them down into clear and concise statutes and at the same time to change certain features of the judicial establishment.

There are now three steps in litigation from its inception to the final decision from which there is no appeal. With the exception of a few isolated cases, all litigation in the Federal courts begins in the district courts. Appeals may be taken from these courts to the Circuit Courts of Appeals. If the litigants are not satisfied with the outcome of their cases there, they may, within certain limitations, carry them to the Supreme Court. The less important cases are not, as a rule, permitted to be carried to the higher courts. The law

seeks to prevent the crowding of the dockets of the higher courts by providing that final jurisdiction in unimportant litigation may rest in the lower courts.

Each court has its own seal, its own records, and its own officials. In every judicial district there is a United States district attorney, a United States marshal, and such clerks of the court as its business demands. Each district court must hold sessions at a number of different places. The law provides where these meeting places are to be, and the towns designated are usually those which have Federal buildings. A large number of cases are not tried by juries, but each term of each district court requires the services of jurors. These jurors, both grand and petit, are drawn publicly from a box containing the names of not less than 300 persons possessing the necessary qualifications. These names are placed therein by the clerk of the court and a commissioner appointed by the judge. The commissioner is a citizen of good standing residing in the district in which the court is held, and he is a well-known member of the principal political party opposing that to which the clerk of the court belongs. The clerk and the commissioner then proceed to place the names in the box, each of them putting in a name alternately without reference to party affiliations.

Any suit of a civil nature, arising under the Constitution or laws of the United States, or under treaties, may be removed by the defendant from the State courts to the United States district courts. Any suit wholly between citizens of different States may be carried to the United States district court. The law requires that all offenses punishable with death under the Federal laws shall be tried in the county where the offense was committed, providing it can be done without great inconvenience. When a murder is committed on the high seas, the case is tried in the judicial district where the person charged with the murder is apprehended.

There are nine judicial circuits in the United States, in each of which is a Circuit Court of Appeals. Each circuit

is presided over by one of the justices of the Supreme Court. He seldom sits in cases coming up in the Circuit Court of Appeals, but more usually looks after the work of supervising the administration of affairs in the circuit.

No judge of a Federal court is permitted to practice law, and may be impeached if he attempts to do so. Any judge who has served 10 years continuously and has attained the age of 70 may retire from the bench by resignation and continue to draw his full salary during the remainder of his life, a privilege few fail to exercise.

Among the Federal judges there have been many picturesque and striking personalities. This is particularly true of some of the far western districts. One of these was Judge Hallet of the Colorado district. Many anecdotes are told of him; for instance, on one occasion he was very much annoyed by the character of bail his clerk was accepting in some criminal cases. Having made an order fixing the amount of bail to be given by certain defendants who were awaiting trial in his court, he turned to his clerk and in a high-pitched voice, such as he usually employed, said, "Mr. Clerk, let these defendants give bonds, but remember I said bonds, not vagabonds."

When Judge Miller was holding court on one occasion before he became Justice of the Supreme Court an argument was being made by an attorney which at times wandered away from the points in issue. Finally Judge Miller said to the attorney, "Oh, please come to the point." "What point?" asked the attorney. "Any damned point," said Judge Miller.

The Court of Claims was established in 1855. It consists of a chief justice and four judges, and holds annual sessions in Washington, beginning on the same day that Congress begins and continuing as long as there is business on its docket. On the first day of the regular session the court is required to transmit to Congress a full report of all judgments rendered during the previous year, the amounts thereof, and

in whose favor rendered, together with a brief synopsis of each claim. No Member of Congress is allowed to practice before this court, and if one does so during his service in that body he is subject to a fine of $10,000 and imprisonment for two years. Moreover, he shall thereafter be incapable of holding any office of honor, trust, or profit under the Government of the United States.

The Court of Claims has jurisdiction over all claims, except pensions, founded upon the Constitution or the laws of Congress, or upon any regulation of an executive department, or upon any contract expressed or implied with the Government of the United States. This does not include claims growing out of the Civil War and commonly known as war claims. The court also acts as a guide for Congress in determining the propriety of the Government's paying any claim which can be satisfied only by congressional action. The branch of Congress having a case of this nature pending may, by vote, refer it to the court, and the court then hears all of the testimony, makes the necessary investigations, and reports the facts in the case to Congress and advises that body what amount, if any, is legally or equitably due the claimant from the United States.

Another special court created by Congress is known as the United States Court of Customs Appeals, composed of a presiding judge and four associate judges. This court is required always to be open for the transaction of business, and sessions may be held wherever the court may designate. All cases growing out of the decisions of the customs officials of the Government with reference to the construction of the law and the facts respecting classifications of merchandise and the rates of duty imposed thereon come up to it from the Board of General Appraisers. The judgment and decrees of the Court of Customs Appeals are final in all such cases. If any party interested, whether it be a Government official or an importer, owner, consignee, or agent of any imported merchandise, is dissatisfied with the decision of the Board of

General Appraisers, he has 60 days in which to carry his complaint to the Customs Court.

A great volume of business is transacted in the circuit and district courts of the United States. During the fiscal year 1922 there were docketed 1,621 cases of both a civil and criminal nature in the Circuit Courts of Appeals. Of these 1,587 cases were disposed of. In the district courts of the United States the number of cases commenced during the fiscal year of 1922 was 9,646, and of those terminated during the same period was 8,170. The criminal cases to which the United States was a party in the year 1922 were 60,722. Of these 53,155 were terminated, with 36,742 convictions and 2,730 acquittals. The remaining cases were either discontinued or dismissed. Suits in the district courts in which the United States was not a party which were commenced during the year 1922 numbered over 22,000.

When a corporation or an individual goes into bankruptcy the proceedings take place in the Federal courts. Much of the time of the district courts is spent in consideration of bankruptcy matters. There were over 38,000 cases filed during the fiscal year 1922, 22,500 being disposed of. The bankruptcy cases cover those which are voluntary and involuntary. Of the 1922 cases over 28,000 were voluntary and 9,000 were involuntary. The liabilities in the cases closed during the fiscal year of 1922 were $255,613,895.87. Of the 22,500 bankruptcy cases disposed of in 1922, farmers were involved in 3,238; wage earners, 7,582; merchants, 6,474; manufacturers, 811; professional men, 352; and other classes, 4,060.

The United States maintains courts in its territorial possessions of Hawaii, Alaska, the Philippines, and Porto Rico; and strange as it may seem, the United States maintains a Federal court in China. This was established in 1906, and this extraordinary event was brought about by a treaty between the United States and China to prevent the citizens of the United States guilty of misdemeanor in that far-away

land from being subjected to the unusual administration of justice in China.

The total cost, including salaries and expenses of the United States courts for 1922, was approximately $11,700,000, divided as follows: Supreme Court, $201,538.44; United States Court of Customs Appeals, $66,123.75; Court of Claims, $115,426.26; District of Columbia Courts, $269,764.28; Circuit Courts of Appeals, District and Territorial Courts, $11,038,355.81.

Data from the Department of Justice on the prohibition cases handled in the district courts of the United States give an idea of the enormous work of these courts. On June 30, when the fiscal year 1923 ended, there had been 98,706 prohibition cases terminated since January 16, 1920—when the act became effective. There have been 11,311 more convictions during the fiscal year 1923 than for the preceding year and 16,198 more than for the year before. These figures not only indicate the rapid increase of prohibition cases but also indicate, according to the belief of the officials of the Department of Justice, stricter enforcement of the law.

In the early days of the Federal courts it was customary for judges to travel on horseback from one place of holding court to another. This was called "riding the circuit." At times the attorneys in cases to come before the court would accompany the judge. On one occasion Judge Blank was making one of these trips and was accompanied by the attorney for the plaintiff and the attorney for the defendant. They had some distance to go so the attorneys argued their cases as they rode along and the judge rendered a decision. Just as he finished stating his decision the horse stumbled and nearly fell. Whereupon the attorney who lost the case said: "No wonder the horse stumbled, it's surprising he didn't drop dead when he heard that decision."

XXIV

THE HOUSE OF REPRESENTATIVES

BECAUSE each of its Members must return to his constituency every two years for reelection, the House of Representatives of the American Congress stands as the nearest approach to a reflection of the will of the people that is to be found in this country's governmental system. Senators are elected for a term of six years and, therefore, are less subject to the fluctuation of public opinion than Representatives. The President is elected for four years' service and public opinion may swing as a pendulum from one extreme back to the other before the country has opportunity to pass upon his administration. Only the House reflects practically every change of sentiment that comes over the American people.

In the Sixty-eighth Congress, and probably in a number of succeeding Congresses, the House will be made up of 435 Members, not including the Territorial Delegates from Alaska and Hawaii and the Resident Commissioners from the Philippine Islands and Porto Rico. These Delegates and Commissioners have a place on the floor and may speak upon pending questions, but they have no vote. The membership of the House is fixed by Congress. The Constitution provides for a decennial census to ascertain the population of the United States and each State in the Union. This is primarily to determine exactly what proportion of the total membership of the House shall be assigned to each of the several States.

After the census returns at the beginning of each decade are in hand, Congress may take up the problem of determining the size of the House during the 10 years to follow. As long as the population of the country continues to grow as rapidly as it has in the past, it is inevitable that either the number of Members must be largely increased, or that the number of people who shall constitute the average congressional district shall be correspondingly increased. To increase the membership of the House in proportion to the growth of the country would result in that body, becoming so large as to be unwieldy. To maintain it at the same number would result in such a large increase in the number of people who would constitute a congressional constituency that States with slowly expanding populations would lose Members, while States with rapidly growing populations would gain a corresponding number of Members. To compromise, as at present, will make it inevitable that some Members represent twice as many constituents as other Members. Congress faces the problem of determining upon a membership which is not excessive and a representation which does not too greatly cut down the existing representation of any State. It has nearly always increased both the membership of the House and the ratio of the population entitled to one representative. For instance, the House under the apportionment of 1901 had a membership of 391, as compared with the membership of 435 under the apportionment of 1911, while the ratio of population was 194,182, under the census of 1900, as compared with 211,877 for the census of 1910.

Not all congressional districts have the same population in practice, although theoretically they should have. This is due in part to the fact that congressional districts usually follow county lines, town lines, or ward lines in cities, so that the population can not therefore be divided with exactness. Congress simply apportions representation among the various States, and allows each State to fix the limits of the congressional districts to which it is entitled. In fixing these

lines the State legislatures frequently resort to what is known as gerrymandering. That is, if the Republicans happen to control the legislature of a State when a redistricting bill is pending, they crowd all of the strongly Democratic counties into as few districts as possible, thus insuring Republican representation in the greatest possible number of districts for the decade ahead. On the other hand, if the Democrats are in power, they crowd as many of the Republican voters into one district as they can. This sometimes results in remarkable variation from the ratio of representation fixed by Congress. For instance, under the 1900 census the ratio was 194,182. Yet in the fourteenth district of Pennsylvania there was a population of only 146,000, while in the third district there was a population of 251,000.

Still more remarkable were the discrepancies shown as the lists of Members were made up for the Sixty-eighth Congress in 1923. Since no reapportionment bill had been passed following the census of 1920, and sentiment in Congress seemed against any move to increase the membership of the House, the fourteenth district of Pennsylvania had a population of only 129,465 while the third district had dropped back to 214,869. Yet the first Pennsylvania district, comprising several wards in the city of Philadelphia, embraced 328,336 constituents; and the sixth district of the same State represented 543,912 constituents, or more than half a million as against an apportionment of a little more than 200,000.

Another illustration is found in the fact that the entire sparsely settled State of Wyoming has but one Member in the House of Representatives. Under the 1920 census, it had but 194,402 inhabitants. Yet in the same House of Representatives the city of Greater New York had 20 Members in the House. The Congressional Directory, issued at the beginning of each session of Congress, is replete with such instances of disjointed apportionment. However, various proposals for an increase in House membership after the census of 1920 failed of approval even in the House itself.

The Senate has always approved any apportionment scheme passed by the lower Chamber. The House always initiates legislation for a membership increase in its own Hall.

The House, like the Senate, is judge of its own membership. Even though a Representative might be elected by the unanimous vote of his constituents the Members of the House could, if they chose, bar him from taking a seat or remove him after he was installed as a Member.

Under constitutional apportionment laws the membership of the House has increased every decade or so. It started with only 65 Members. After the First Census in 1790 the number was increased to 106. In 1800 the number was raised to 142. The House membership jumped to 185 after the 1810 census and to a membership of 391 after the Twelfth Census in 1900, with an increase to 435, the present number, following the 1910 enumeration. Since several attempts to increase the membership after the 1920 census failed, it seems likely that the lower House will remain as it is until another census is taken in 1930.

The House of Representatives is not a continuing body. Each House expires with the fall of the gavel of its Speaker at noon on the fourth of March of every alternate year. The new Members, following primary campaigns in their respective States, are elected in November before the old House dies and such new Members go on the pay roll, at $7,500 per annum, on March 4, the day of the official demise of the old House. Unless an extra session is called, these new Members do not actually enter upon their duties or answer a roll call until a new Congress convenes on the first Monday of the December following.

Just before a new House of Representatives assembles the Members of each political party hold a caucus to nominate candidates for the elective officers of the House, the Speaker, Clerk, Chaplain, Postmaster, Sergeant at Arms, and Doorkeeper. Of course it is known long in advance which party will control the House and elect its officers, and the nomina-

tions made by the other party are perfunctory, barring the possibility of bloc combinations or party defections.

When the House convenes, it is called to order by the Clerk of the preceding House, and no other business is in order until a Speaker is elected. William Tyler Page, Clerk of the House in the Sixty-seventh Congress, was a page in the office of the Clerk of the House in 1881. He has remained in the employment of the House since that time. Once, some years ago, the Clerk acted as presiding officer from the first of December to nearly the middle of February, while the House could do nothing but ballot for Speaker, none of the political factions in the House being able to muster a majority for its candidate for the Speakership. When the Clerk of the former House calls the new one to order, the chairmen of the party caucuses nominate the caucus candidates for the Speakership and a ballot is taken to determine which shall be chosen. Of course, the candidate of the party which has a majority in the House wins. A committee is then appointed to notify him of his election and to escort him to the Speaker's chair. It is customary for the Speaker elect to ask the oldest Member in service to administer the oath to him. Amid loud applause and the waving of handkerchiefs, and to the click of cameras in the galleries, he accepts the gavel from the Clerk, and in a few words thanks the Members and pledges himself to fulfill the duties of Speaker. He then calls new Members in the alphabetical order of their States to the well in front of the rostrum and there administers the oath of office to them. After this the caucus chairmen bring in their respective resolutions, naming the minor elective officers of the House, and, of course, the resolution of the majority party is adopted. The House is then organized.

Prior to a rearrangement of the seats a few years ago the first procedure after the organization of the House was a lottery for seats and desks, and, excepting a few favored veterans and chairmen of important committees, all Members at the beginning of each Congress drew lots for the more

desirable places. To-day, there are no desks in the House and the 435 chairs are occupied from day to day in a first-come-first-served fashion. The only variation in this practice is that there is one large table on each side of the House, a half dozen rows from the front, and majority and minority Members in charge of a pending bill use these tables for their papers and documents. When a bill from another committee is reported and called up, ranking members of that particular committee replace at the tables the men who had charge of the preceding bill.

The next question after House organization is the adoption of a code of rules which, in conjunction with Jefferson's Manual and the principles of parliamentary law, will govern the procedure of the House during that Congress. The increased power given the Speaker under the rules, up to and including the Speakership of Thomas B. Reed, and the wielding of this power by Reed in somewhat imperial fashion, brought to the Speakership the title of "Czar" and "Autocrat." Speaker Reed was followed by David B. Henderson, who, owing possibly to a difference in personality, did not encounter the criticism of autocracy. Speaker Cannon, affectionately called "Uncle Joe," came into office immediately following Speaker Henderson, and it was under his term that the House determined that the Speaker should be the instrument of the House rather than the House being the instrument of the Speaker.

It was always a favorite assertion of former Speaker Cannon, the last of the line of Republican Speakers who reigned in the House from 1895 to 1911, that the Speaker was the creature of the House, and that it could put him out of his position any hour it chose to do so. Yet he always knew his party associates would put up with almost any kind of application of the party lash rather than dethrone him. Theoretically his statement was absolutely correct; practically it was wholly erroneous. However, in the so-called rules revolt in the House in 1910 the Speaker, Mr. Cannon, was removed

from his place on the Committee on Rules and his powers were reduced, although he retained the Speakership. While this is regarded as a position of political importance, James K. Polk is the only man who ever held the office and later became President. In late years it has become the practice at the beginning of each Congress to adopt the House rules of the preceding Congress, with such modifications as the party in power may suggest and have the votes to adopt.

After the adoption of the rules, and it is always made possible to suspend them when political or other exigencies require it, the next question is the selection of the committees of the House. For a century it was the custom for the Speaker to name all of the members of the various committees. In late years he usually consulted the minority leader as to the personnel of the minority members of the committees, but this was an unofficial act of grace. When the Democrats came into power in the Sixty-second Congress, they decided that the power to appoint committees should be taken from the Speaker and that all standing committees should be elected by the House. The Democrats selected majority members of the Ways and Means Committee in caucus and then made them a Committee on Committees for the purpose of nominating members of the standing committees. Its selections for the majority representation on committees were ratified by the Democratic caucus. The Democratic majority permitted the Republican minority to nominate its representation in its own way, and the Republican caucus delegated the duty to the minority leader. The nominations were then all confirmed by formal election in the House. Later, however, the Republicans of their own accord modified this procedure and directed creation of a Committee on Committees to make up the assignments to the standing committees and so to-day both parties have substantially the same method of selection. The power and influence of a Member depends partly upon his committee assignments. The seniority rule generally obtains; that is,

Members of long service work up to chairmanships and ranking positions while the new Member must start at the foot of a committee.

There are 60 standing committees in the House of Representatives. Of these perhaps less than half are of importance, except upon rare occasions, and meetings of the committees of minor importance are seldom held. For many years the Ways and Means Committee was theoretically the greatest and most powerful House committee. Before the Civil War this committee not only had charge of all legislation for the raising of revenue, but also that of making all appropriations. It was then decided to separate the work of the committee, allowing the Ways and Means Committee to continue in charge of revenue matters and creating an Appropriations Committee in charge of legislation carrying appropriations. At that time Thaddeus Stevens was chairman of the Ways and Means Committee. He decided that the Appropriations Committee would become the more influential, and took the chairmanship of Appropriations in preference to that of Ways and Means.

While the Appropriations Committee was so regarded in those days its power to-da has grown to truly remarkable proportions. At the outset of the Sixty-seventh Congress the Appropriations Committee took over, with House approval, the appropriating powers of all other committees and the handling of all the post-war annual supply bills, mounting into billions of dollars, and the membership of the Appropriations Committee was increased from 21 to 35. Ranking members of other committees, deprived of their appropriating powers, were added to the Appropriations Committee. It is generally conceded now that this committee, holding all the purse strings of the Government, is greater than the Ways and Means or any other committee with the possible exception of the Rules Committee. The Ways and Means Committee is fairly inactive except when a tariff bill or new taxation law is to be written.

Until appropriating powers were centralized in the big Committee on Appropriations there were nearly a dozen committees of the House authorized to report money-spending bills. For instance, Naval Affairs handled the annual budget of the Navy, Military Affairs doled out money to the Army, and Post Offices and Post Roads made up the supply bill for the Postal Service. The Appropriations Committee then handled only such odds and ends as the legislative, executive, and judicial appropriation bill, the District of Columbia budget, and the sundry civil supply bill. However, committees that lost their appropriating powers still retain legislative powers. They continue to consider legislation and make reports to the House. Thus if it is desired to increase the size of the Navy, the Naval Affairs Committee will report the bill, but the money for the support of that larger Navy must come through the Appropriations Committee. Other committees handle all purely legislative matters and may "authorize" appropriations, but the money is not forthcoming until the Appropriations Committee allows it.

Congress appropriates annually between three and four billions of dollars for the maintenance of the Government. This money is derived in various ways from bills of taxation. The tariff places a duty on practically all commodities coming here from other countries. Other revenue laws have ranged from liquor and tobacco taxes, excess profits taxes, excise taxes on corporations, and surtaxes on individual incomes to that of a tax on a woman's hat, or the 1-cent levy on a movie ticket.

The relative importance of the committees varies with the character of the issues before the country. When the tariff or taxation question is up, the Ways and Means Committee is temporarily the most important committee. If there is to be a fundamental change in law, such as a national prohibition act, the Committee on the Judiciary takes precedence. If important legislation to regulate interstate commerce is required, the Committee on Interstate and Foreign

Commerce holds the spotlight and power, and if war is to be declared the Foreign Affairs Committee reports the resolution. When the question of woman's right to the ballot was foremost, the Committee on Woman Suffrage was the prominent one. Again, if the House proposes to increase or reduce its membership the Census Committee, which has little to do ordinarily, becomes important. So, again, the Immigration Committee moved up in power and standing with the after-war demand for restrictions on immigration.

In recent years the growing importance of legislation affecting the farm conditions of the country has brought great prominence to the Committees on Agriculture, both in the Senate and House. When the Federal Reserve System was created, the Committee on Banking and Currency was the committee of the hour. In its original form the Federal Reserve Act was introduced in the House by Representative Carter Glass, of Lynchburg, Va., afterwards Secretary of the Treasury, and now a Senator from that State. The bill when it reached the Senate was handled by the Banking and Currency Committee of that body, of which Senator Robert L. Owen, of Oklahoma, was chairman. It is an interesting coincidence that Senator Owen also was originally from Lynchburg.

As a general proposition, however, of the many House committees, which range all the way from Appropriations to Disposition of Useless Papers, the "Big Six" may be listed as Appropriations, Ways and Means, Interstate and Foreign Commerce, Judiciary, Banking and Currency, and Rules. The Rules Committee is powerful, although its membership is small. It may bring in a resolution suspending the regular rules of the House and giving any bill the right of way. If a bill becomes buried on the calendar and the Rules Committee refuses to bring in a special rule that measure has little chance. The membership on this Committee of the Speaker of the House brought on the rules fight in 1909 and 1910 which finally removed the Speaker

from that committee and divested the Speakership of much of its powers.

The House of Representatives requires an efficient staff of officials and clerks to serve it. The Speaker has a personal staff of about half a dozen clerks and messengers. One of these clerks is known as the clerk at the Speaker's table. He is always an expert on parliamentary law and one who has the precedents of the House procedure ever at his finger tips. Under the Republican Speakers from 1895 to 1911 this position was held by Asher C. Hinds, of Maine, who came to know more about House procedure than any other man in the country. The last compilation of House Precedents, published by the Government Printing Office, will consist of ten large quarto volumes, making the most exhaustive compilation of parliamentary law in the world. Mr. Hinds was elected a Member of the House in 1910, and, the Democrats coming into power, he was succeeded as chief parliamentarian by Judge Charles R. Crisp, who had held the office before when his father, Charles F. Crisp, was Speaker. Subsequently, Judge Crisp, too, was elected to the House and for a time Bennett Clark, son of the late Speaker Champ Clark, served as parliamentarian. Clarence Cannon, who until recently held the place, has also been elected to the House to represent the ninth district of Missouri. Thus it seems that the office of parliamentarian is a stepping-stone to House membership. Each Speaker selects his own parliamentary assistant.

The House has a Chaplain, elected by that body, who invokes Divine guidance for its deliberations as the House meets each day. Prayer always precedes the reading of the Journal of the day before, except when the House does not adjourn but stands in recess from one day to another. Then there is no prayer and no Journal to be read. For many years the Chaplain of the House was the Rev. Henry N. Couden, a minister who was blind as a result of a wound received in battle in the Civil War. He was a Republican, but when the

Democrats came into power he was retained, serving until his death in 1922.

One of the most interesting things in the House is the mace, the emblem of its authority. If a Member refuses to obey the orders of the Speaker or of the House, the Speaker orders the Sergeant at Arms to bring the offender to order. This official takes the mace, which is a variation of the old Roman symbol of power, the fasces of the lictor, except that a silver eagle is substituted for the battle-ax, and marches to the seat of the offender. A Member always dreads a visit from the Sergeant at Arms bearing the mace and usually subsides before it is taken from its pedestal near the Speaker's chair.

The House has its own post office, its own restaurant, a folding room from which documents are sent out, a document room where all sorts of legislative documents are on file, and other facilities which leave nothing to be desired in expediting legislation. It is when a session of Congress comes to a close that one of the most interesting scenes of congressional activity is enacted. For several days before there is usually a great crush of business with perhaps an all-night filibuster at the end. An all-night session is a strenuous affair and frequently the House is without a quorum. Then the Members try to keep awake by singing, smoking, telling jokes, and quarreling—in fact, everything else but legislating. There are usually some rather strong candidates for operatic honors and when they sing such songs as "We Won't Go Home Until Morning," "My Old Kentucky Home," and "Old Black Joe," there are high times, the House generally standing in recess for the songfest. The more sedate Senate stages no such farewell ceremonials.

The House in the Sixty-eighth Congress is unusual in that many of the most important personages in the preceding sessions are no longer Members. One of the most familiar characters in public life, "Uncle Joe" Cannon, who served 23 terms in the House, is among those missing, having retired voluntarily. Now, the oldest Member of Congress, in point

of service, is Speaker Frederick H. Gillett, of Massachusetts, who has served 15 consecutive terms.

The House has been looked upon by many as the training school for Senators and it is to be noted that a third of the Members of the Senate of the Sixty-seventh Congress were former Members of the House.

Constituents have different opinions of their Representative. He is a man who plays many parts. To some he is a legislator, an errand boy, a political agent, or possibly a sightseeing guide. To others he is an employment bureau and general adviser to the poor and needy. Nothing is thought to be too difficult for a Representative to perform, from getting sugar when there is none, to influencing the President to appoint the home-town mayor as Secretary of State. It is estimated that each Representative gets on an average of 100 pieces of mail per day, and each Senator 70. This brings the Capitol correspondence for the day to around 50,000 pieces.

It was only in recent years that the House has been invaded by women Members. Miss Jeannette Rankin, of Montana, was the first woman to have the distinction of sitting as a Member of that body. Miss Alice Mary Robertson, of Oklahoma, and Mrs. Winnifred Mason Huck, daughter of the late Senator William E. Mason, of Illinois, have also served as Members of the House. In the Sixty-eighth Congress there is but one woman Representative, Mrs. John I. Nolan, of California, the wife of the late Representative from the fifth congressional district of that State. Only one woman has ever served as a Member of the United States Senate. Mrs. Rebecca Latimer Felton, of Cartersville, Ga., was appointed by Gov. Thomas W. Hardwick to fill a vacancy and had the distinction of serving in the Senate, although but for three days.

The question as to whether the Speaker of the House has any authority as such after the adjournment of a Congress has often been raised. At the time of the funeral of President

Harding when it was necessary that invitations be issued for the funeral services in the Capitol Building, there was an argument as to whether the invitation should be sponsored by "The Congress of the United States," and signed on the part of the House by the Speaker. It was decided that the invitations should go without the title "The Congress of the United States," as William Tyler Page, Clerk of the House, cited the precedent that Mr. Henderson, in the same circumstances, was unable to act when President McKinley died in 1901. Mr. Page, as the ranking House official, prepared the list of guests for President Harding's funeral.

The House of Representatives is perhaps the most expensive law making institution in the world. Beginning with the Sixty-eighth Congress, the annual expense of maintaining it approximates $6,000,000 a year, which does not include its large printing bill. The salaries of its Members aggregate nearly three and a half million dollars. Each Member is allowed $3,200 for clerk hire, and this amounts to $1,408,000. The House has a large staff of officers and clerks, whose salaries total nearly $600,000. There are other items to be considered, such as an allowance of 20 cents for each mile traveled by each Representative in coming to his duties and returning home, and $125 for stationery allowance.

The House requires that an annual report shall be made by its Clerk. This report goes into the minutest detail of all expenditures. After noting the larger items of expense it shows in one instance that a 1-cent refund was made on a clerk's salary, that 10 cents was paid for a felt washer for the Speaker's automobile, and that a bottle of violet ink was purchased for 6 cents.

XXV

THE SENATE

THE Senate of the United States, called by George Washington "the saucer in which the tea of the House brew is cooled," is a legislative body differing in many respects from any other in the world. By many it is regarded as the most powerful factor in the American governmental machine. There are things which the President and the Senate may do without the assent of the House of Representatives, and things which the House and the Senate may do without the assent of the President, yet the President and the House can do comparatively little without the assent of the Senate.

The Senate is vested with a measure of all of the three powers of the Federal Government—legislative, executive, and judicial. It exercises legislative power as one of the branches of Congress and its concurrence is necessary to the perfection of all kinds of legislation. It exercises executive power under the constitutional mandate requiring its advice and consent to make effective the nominations of the Federal officers by the President, and through the constitutional requirement that no treaty shall become effective except it be ratified by a two-thirds vote of the Senate. The judicial power of the Senate arises from its constitutional authority to sit as a Court of Impeachment when Federal officers are tried for "high crimes and misdemeanors."

The Senate has sat as a Court of Impeachment in nine cases where officials were accused. Among this number were Andrew Johnson, President of the United States, and Samuel Chase, Associate Justice of the United States Supreme Court,

both of whom were acquitted. In three instances the accused were found guilty by the court.

The most recent treaties ratified by the Senate which attracted world-wide attention were those resulting from the Conference on the Limitation of Armament. The more prominent of the treaties was the one known as the Four-Power Pact, entered into by the United States, the British Empire, France, and Japan, which related to their insular possessions and dominions in the Pacific Ocean.

The House possesses no power to influence the Senate or the President in matters of political appointment or treaty relations, except when a treaty involves expenditure of money as in tariff or reciprocity matters. Once ratified it becomes equal in authority with a law of Congress. The House may decide to impeach the President, but it remains for the Senate to sit in judgment, the only limitation upon this power being that the Chief Justice of the Supreme Court shall sit as its Presiding Officer.

The one situation in which the Senate may be subordinated entirely to the House is when the lower branch of Congress, under Amendment 12 to the Constitution, has the responsibility of electing the President of the United States, none of the candidates having received a majority in the electoral college. In such cases the House ballots by States, the majority in each State delegation controlling.

The top of the Speaker's desk in the House of Representatives has to be renewed frequently, as it is worn out by the Speaker's pounding upon it to call the House to order. In the Senate, in rapping for order, the Presiding Officer has no occasion for such vigorous pounding. The Senate gavel is the one which was first used in the Continental Congress and has been used since the days of John Adams, the first Vice President. It is of solid ivory and has no handle. It has yellowed with age and shows a few cracks on its surface, but is good for many years to come.

In the Senate everything is conservative, staid, and dig-

nified. The House will permit itself to be photographed on special occasions. The Senate, as a body sitting in the Senate Chamber, in all history has never succumbed to the importunities of the press photographer. However, photographs have been made of the Senate sitting with the House in joint session, upon the occasions when the President has called them together to receive one of his messages delivered in person. Such joint sessions are held in the Hall of the House.

In the House a Member desiring to make a speech often has to beg for a single minute in which to make it. In the Senate there is practically no limit to the time a Senator may talk, except that imposed by his own powers of endurance. It is said that while some men are Members of the House of Representatives they are somewhat extravagant in speech, but should they become Members of the Senate they become conservative. As an illustration of the conservative speech of Senators, the late Senator Allison, of Iowa, can be used as an example. While walking with a friend in the country his companion remarked "Those sheep have just recently been sheared," to which Senator Allison replied: "They appear to have been sheared on this side."

In recent years the Senate has amended its rules of debate so as to effect a modified cloture, such that when 16 Senators sign a petition or motion for invoking a rule for shortening debate, and two-thirds of the Senate shall vote to make the petition effective, thereafter no Senator shall be entitled to speak in all more than one hour on the pending measure. This rule can not be invoked until two days after the Senate has agreed to it, and as 96 hours could be used in the discussion of a subject, under the terms of the rule, it is obviously inoperative in the closing days of the Congress when the most effective filibusters of the Senate are held.

In the House a Member may ask leave to extend his remarks in the Congressional Record and then may have printed there a speech not a word of which was delivered on

the floor. He may even go as far as to place in his printed but undelivered speech interpolations such as "Applause," "Prolonged applause," "Loud and continued applause," and other little phrases wherever he thinks they ought to go. It is true that only a few Members carry the matter thus far. But in the Senate the practice of extending remarks in the Record is never resorted to, and the practice of inserting such interpolations as those cited is unheard of.

The Senate, however, maintains by practice a right of review by individual Senators of speeches that they make extemporaneously. As a body and individually the Senate and Senators desire that all matter going into the Record be as accurate as possible, so a Senator is submitted his remarks after they have been transcribed from the stenographer's notes, and minor corrections are made when necessary. The Senate jealously guards the report of its proceedings, and theoretically no word of a Senator not uttered on the floor in the course of the proceedings of the Senate is permitted to go into the Record.

The right of a Senator to have inserted in the Record an article from a newspaper, written by himself, without it's being read to the Senate, has been denied as the privilege of a Senator in one of the decisions of the Senate. On February 9, 1923, in discussing the World War foreign-debt settlement, Senator McKellar asked to have printed in the Record a newspaper article written by himself. This was objected to and the Presiding Officer asked of Senator McKellar, "Is the Chair to understand that the article is one written by the Senator himself?" To this the Senator replied, "Absolutely." Whereupon the Presiding Officer announced, "Then, under the rule of the Senate, the Chair understands it can not be printed without being read by the Senator."

The Senate differs from the House as widely in its rules and in the way in which it is constituted as it does in the character of its proceedings. The Senate never dies. One-third of the Senators goes out of office and a like number

comes in every two years, so that two-thirds of the Senate membership is always in office. The House dies every two years and must be entirely reorganized at the beginning of each Congress. There is rivalry between the two bodies, each asserting itself to be the more powerful and each occasionally pointing to its own superiority on account of difference in procedure.

The Senate is composed of 96 Senators, two from each State, who are now elected by popular vote instead of by the legislatures of the States, as was formerly the constitutional method. The term of office of a Senator is six years. The senatorial salary is $7,500, the same as that of a Member of the House. Senators are prohibited from practicing before the executive departments for monetary consideration and they can not be appointed to any civil office under the United States which shall have been created, or of which the emoluments shall have been increased, during the term for which they were elected. For example, the late Philander C. Knox was a Senator when the salaries of members of the Cabinet were increased from $8,000 to $12,000, and when he became Secretary of State he was forced to serve at the smaller salary. Senators may, however, participate in quasi-legislative bodies, and for several years Senator William B. McKinley, of Illinois, has been President of the United States group at the sessions of the Interparliamentary Union at Copenhagen. The Senate has 34 standing committees and its proceedings are governed by 40 rules.

In view of the prestige and political power of its members it might be expected that the Senate would be in effect a training school for Presidents, and so it has proved in a number of instances. Ten of the men who have occupied the White House served in the upper branch of Congress. They were Monroe, John Quincy Adams, Van Buren, Jackson, Johnson, both the Harrisons, Tyler, Pierce, and Harding. Garfield had been elected to the Senate when he was nominated and elected to the Presidency, but he had not taken

his seat. Senators have been recognized leaders in national affairs, and have wielded a powerful influence in the political parties with which they affiliated. In almost every national campaign at least one of their number has been an active candidate for presidential honors, and it is perhaps surprising that more of them have not been successful. Warren G. Harding had the distinction of being the only man elected President while he was serving in the Senate.

Many women are employed as secretaries or clerks in the Senators' offices, and several of the standing committees of the Senate have women as principal clerks. While all of the men on the Senate rolls are entitled to the privilege of the floor while attending to official duties, no woman clerk has ever had this privilege. The only women ever seen on the floor of the Senate have been Mrs. Felton, the woman Senator from Georgia, and the several women Members of the House. Lady Nancy Astor, as a visiting member of the parliament of a foreign country, was accorded the privilege of the floor when she visited the Senate in 1922. Women witnesses in impeachment cases are entitled to the floor while testifying.

Each body is proud of its distinguishing features. The House could not be induced to give up its right to cut off debate whenever it desires to do so, and the Senate has never found provocation strong enough to induce it to curtail the right of unlimited debate, the cloture rule before mentioned being the only exception, and that having been invoked only once—when the League of Nations was first under discussion. Legislation in the Senate is enacted largely on the principle of unanimous consent. In practice the Senate never agrees to set a date for a vote except by unanimous consent.

The principle that every Senator is entitled to speak as long as he desires, and that no motion can take away from him the right to the floor until he is ready to yield it, has produced the unique senatorial filibuster. A Senator at the end of his speech may yield the floor, and as long as another

of the opposition succeeds in following him they are able to prolong the debate and prevent a vote. Senators engaged in a filibuster have an advantage over those attempting to bring about a vote. Three or four strong-lunged Senators on guard in the interest of a filibuster can usually maintain debate so long that it wears out the efforts of the majority to maintain a quorum.

According to tradition in the Senate there shall not be any limitation on free and full debate. This freedom of debate has been used by individual Senators for the purpose of blocking legislation to which they were opposed, especially toward the end of a Congress which expires biennially on March 4. Thus former Senator Carter, of Montana, once defeated a river and harbor bill by talking it to death; the late Senator Clay, of Georgia, made a lengthy and successful filibuster on a statehood bill; the Democrats of the Senate successfully filibustered against the famous "Force Bill," and Senator Tillman, of South Carolina, successfully insisted upon an appropriation for a navy yard in his State which had been repeatedly disallowed.

In 1908 Senator LaFollette, of Wisconsin, and several other opponents of the Aldrich currency bill, started a filibuster against the adoption of the conference report on that measure. Every technicality was utilized for the purpose of consuming time. The question of "no quorum" was repeatedly raised and the session which began at noon on May 29 continued for some 30 hours. This brought about the resurrection of an ancient rule whereby Senators could be compelled to vote or to give a good reason for declining to vote. Under this rule the Vice President counted a quorum in spite of the fact that a majority of the Senate had not voted. The Senate also determined upon that occasion that the question of "no quorum" could not be raised when a previous roll call had disclosed the presence of a quorum, if no business had intervened, and it was held that the debate did not constitute intervening business. One man filibusters

usually take place at the very close of a session of Congress, and upon these occasions some champion long-distance speeches are delivered.

Perhaps the greatest filibuster ever conducted, and one which gripped the attention of the entire country, was the one against the "Force Bill," in Harrison's administration. The Democrats realized that the only way they could prevent the passage of the measure and its approval by the President would be to keep it from coming to a vote. The Republicans decided that they would insist upon fixing a time for a vote, and to do so they were willing to break the precedents of a century and vote a cloture, and they attempted thus to cut off the right of unlimited debate. They found that some of their own members, while extremely anxious to pass the "Force Bill," were not willing to do so at the price of breaking this time-honored precedent. The late Senator Quay, of Pennsylvania, heartily disliked President Harrison, and his support of the Democratic filibuster turned the tide and defeated the bill.

The most effective filibuster in recent years was that against the so-called Dyer Anti-Lynching Bill. The opponents of this bill were so active that when the Senate attempted the consideration of the measure the Senators opposing it would not even let the journal of the previous day's proceedings be read. By their parliamentary maneuvers they continued debate and even prevented the bill's being brought before the Senate for actual consideration. Still more recently, the so-called Ship Subsidy or Merchant Marine Bill was prevented from coming to a vote by prolonging the debate. In one of the long discourses Senator Sheppard, of Texas, read a review of the work of the League of Nations, continuing six hours and fifty minutes in the delivery of the speech, and in that time he did not sit down, rest himself, nor even take a drink of water. Years ago, on another occasion, Senator Smoot, of Utah, spoke all night without leaving the desk at which he was speaking

The Senate, as a body, retains in constant use many things of great historical value. The gavel is probably the most important of all historical relics, being handled daily when Congress is in session. The desks at which the Senators sit are, in many instances, those which were used by the Senators when the Senate met in what is now the Supreme Court Chamber. The desks of Clay, Calhoun, Sumner, Webster, and Jefferson Davis are used by Senators of modern times. The desk which Charles Sumner used is known as the Massachusetts desk, and now Senator Lodge, the leader of the Republican party in the Senate, uses it. It is thought by some to be the one at which the great Daniel Webster made his famous speeches in the old Senate Chamber. The desk used by Senator Jefferson Davis, President of the Confederacy, is now used by Senator Pat Harrison, also of Mississippi. Hiram Johnson has Warren G. Harding's desk.

Upon each desk in the Senate there is a reminder of the olden days in the form of a sand-duster, which looks very much like a pepper shaker, and from which prepared sand is dusted upon the freshly written ink to dry it. This was used by the old Senators before blotting paper was invented, and the sand-dusters are still kept filled with sand and used frequently.

The Presiding Officer of the Senate is the Vice President of the United States. He is elected by the people and has no powers in the Senate save to preside over its deliberations, and to cast the deciding vote in case of a tie. Since the Senate has no choice in the selection of its regular Presiding Officer, it is careful to hedge his position about with rules which do not permit him to dominate its deliberations. He is required by the rules of the Senate to recognize the first speaker who addresses the chair.

Should a vacancy occur in the Vice Presidency, as happened when President Harding died, and Vice President Calvin Coolidge became President of the United States, the Senate's Presiding Officer is the President Pro Tempore.

The office of President Pro Tempore is filled by the election of one of the Senators to the position. His duty is to serve in the absence of the Vice President. In the case of the death of the President, the President Pro Tempore assumes the Vice President's place as the Presiding Officer of the Senate, and receives the salary and emoluments of the position of Vice President. Senator Albert B. Cummins, of Iowa, was President Pro Tempore at the time of the death of President Harding.

When a new Congress meets every second year, the newly elected Senators are escorted to the Vice President's desk, where he administers to them the oath of office. They have received their credentials from the governors of the States they represent, and these are filed among the records of the Senate. Only one Senator from each State comes in at one time, except under extraordinary circumstances, and his colleague is expected to escort him to the desk of the Vice President. As a rule, Senators extend this courtesy to their incoming colleagues, even though there have been strenuous political differences between them. Occasionally, however, the incoming Senator and the continuing Senator are bitter enemies, personal as well as political, and refuse to exchange any courtesies. When Senator Clarke, of Arkansas, took the oath of office, he presented himself at the Vice President's desk and took the oath unattended.

Shortly after the death of a Senator, or at least during the Congress in which he died, memorial services for him are held in the Senate, and upon these occasions from 2 to 20 Senators will eulogize the deceased. Recently the unusual circumstance existed wherein three Senators from the same State were eulogized upon the same day. The deceased were Senators Crow, Knox, and Penrose, of Pennsylvania. The entire session of the Senate for that day was consumed in eulogies.

The most unusual record of any man in Congress is held by Senator Joe T. Robinson, of Arkansas, who was Representa-

tive, Governor, and Senator elect within the remarkably short period of two weeks. He resigned from the House of Representatives January 14, 1913, qualified as Governor on January 16, and on the 28th of January was elected to the Senate for the term beginning March 4, following. Senator Robinson is the minority leader of the Senate.

The Senate is a great stickler for its traditions. In the early days of the Republic snuff taking was popular, and a snuffbox was kept on the desk of the Presiding Officer. Henry Clay used snuff and would frequently pause in his speeches to inhale it. The old snuffboxes are retained and kept filled even though no one uses them now. Senators sometimes carry personal peculiarities into the Senate Chamber. Sam Houston, of Texas, was a confirmed whittler, and every morning he had a little bundle of pine sticks brought into the Senate Chamber. If matters in which he was deeply interested were pending, his whittling would take the form of simply making shavings; if the matters in which he had no interest were pending, he would carve out little boats, animals, and other designs, and present them to his friends. Senator Charles Sumner had a habit of pulling the pages' ears. Upon one occasion, in a moment of abstraction, he caught a page by the ear and proceeded to march him up and down the Senate aisle. The boy, who became a business man in New York, long had a vivid recollection of the acute suffering he underwent before he succeeded in bringing Mr. Sumner to a realization of what he was doing.

Alabama once sent a man to the United States Senate who was so large than an extrasized chair and desk had to be provided for him, although those in common use will seat comfortably a man of more than 200 pounds. The peculiarities of Senators of bygone days find little counterpart in the Senate of more recent years.

Vice President Thomas R. Marshall, of Indiana, established the custom, while he was in office, of giving the 16 pages of the Senate a Christmas dinner. This custom was followed by

Vice President Calvin Coolidge. Mr. Coolidge attended one of the dinners and addressed the pages, giving them some good advice on citizenship. The pages of the Senate are boys chosen by Senators who can have these positions charged to their patronage. The pages are required by law to be between the ages of 12 and 16. They are selected by the Senators, but receive their appointments through the Sergeant at Arms of the Senate. David S. Barry, the present incumbent of that office, served as a page when a youngster.

The Senate has frequent secret sessions usually for the consideration of executive business, during which the public is rigidly excluded and a great effort is made to maintain absolute secrecy as to the proceedings. However, the newspaper men who constitute the corps of Washington correspondents always have intimate friends among the Senators and it is next to impossible for the Senate to keep the secrets of its secret sessions. The Senate goes into executive or secret session for the purpose of considering nominations sent in by the President, and also for the consideration of treaties. Of course it would be impossible for the Senate fully and freely to discuss all grave international matters in the open, without giving rise to complications with other Governments. Notable exceptions to this were the discussions in open executive session of the Four-Power Pact and Naval Disarmament treaties, and the discussion of the ratification of the League of Nations upon the two occasions it was submitted to the Senate by President Woodrow Wilson.

It is popularly supposed that younger men are being elected to the Senate to-day than formerly. The Constitution requires that a Senator be at least 30 years of age, 9 years a citizen of the United States, and an inhabitant of the State from which he is elected. It is very seldom that the constitutional age limit is even approached, the average Senator being upward of 40 years of age at the time he is chosen. There have been cases, however, when Senators have come into office at an age barely qualifying them for service.

Henry Clay was one of these. Senator C. C. Dill, of Washington, the latest "baby Senator," was not yet 40 when he assumed the toga, and Senator Pat Harrison, of Mississippi, owing to his age and youthful appearance, has been known since March 4, 1919, as the baby Senator.

In contradistinction to the younger men are those who have had long continuous service in the Senate. Senator Henry Cabot Lodge, of Massachusetts, has served in the Senate since March 4, 1893. He served 8 years in the House. In addition to being the oldest Senator in service, he is also the leader of the majority. Senator Furnifold M. Simmons, of North Carolina, is the oldest Democratic Senator in service, having served continuously since March 4, 1901. He served one term in the House. The length of service of Senators is greater to-day than it was before the Civil War. When Thomas H. Benton, of Missouri, had served 30 years it gave him the longest term in Congress that had been enjoyed by any Member in either House. Since the Civil War many Members have served longer than Benton, some of them having 40 years of service in both branches to their credit.

The Senate Wing of the Capitol abounds in priceless relics. There is an old clock in the main corridor of the Senate which keeps good time. It has been in service 121 years and this is proven by the fact that there is a shield on the body of the clock containing 17 stars. Ohio was the seventeenth State to enter the Union, and the date of its entrance was 1802. In the same corridor of the Senate hangs a picture of George Washington by Gilbert Stuart. Stuart is probably the only artist in the world who had the distinction of painting the portrait of King George III of England and of President George Washington of the United States. The Stuart portrait has been accepted as the best likeness of Washington and reproductions of it appear upon our paper money of large denominations. Near the Stuart portrait of Washington is a bust of Garrett A. Hobart, Vice President under

William McKinley. This is such a remarkable likeness of Chief Justice William H. Taft that many visitors to the Capitol think that it is his bust.

In the Vice President's room is a chandelier formerly in the White House, removed during the Roosevelt administration, which is said to be the one under which President and Mrs. Cleveland stood when they were married. In this room there is a mirror which was purchased for $60 by Dolly Madison when she was the First Lady of the Land. Some Congressman, hearing that she had purchased a mirror for this amount, introduced a resolution of censure for her extravagance.

XXVI

HOW CONGRESS LEGISLATES

THE legislative machinery of the two Houses of Congress, through which must pass the thousands of bills and resolutions introduced by their Members, is complicated and yet efficient. At no stage is anything left undone to insure the successful operation of this machine, which converts into perfected legislation the policies, reforms, and ideas contained in the bills as introduced. The misplacing of a comma may involve the constitutionality of a law, or change the purpose of a million-dollar appropriation. In addition to its customary care and watchfulness Congress in recent years has many times stipulated in important legislation that if any section of a law should be declared unconstitutional such court decision should not invalidate the law as a whole. It is obvious that comparatively few of the bills introduced in the life of a single Congress have any chance of enactment, or even of serious consideration. The great majority die in committee, or are left on the calendar as a session ends. From 20,000 to 40,000 bills are introduced in each Congress. In the Sixtieth Congress, for instance, slightly more than 39,000 bills and resolutions were offered; in the Sixty-seventh the number dropped to approximately 20,000. Thus it is apparent that if only 5 or 10 minutes were given to the consideration of each of these bills it would require Congress to continue in session practically the year round. Frequently 5 or 10 days, rather than minutes, are required for the passage of one bill.

This is the reason that the Senate and House must be

subdivided into committees to consider these matters and make their reports to the respective parent bodies. Occasionally the action of a committee on a bill may be reversed by vote of the Senate or House, but this is the exception rather than the rule. Committee action generally determines the fate of a bill.

To illustrate the operation of the legislative machine as it takes a bill as introduced and works it over into the form of a Federal statute, let us take an actual bill and follow it until it becomes a law. The national prohibition act, commonly called the "Volstead Law," affords an excellent example. Its passage involved practically every legislative and parliamentary procedure and maneuver.

Subsequent to the ratification and proclamation of the eighteenth amendment to the Constitution Representative Andrew J. Volstead, of Minnesota, introduced a bill in the House. He placed this bill, along with others introduced that day, in a large basket near the Speaker's table. This is known as the House "hopper" into which all bills are dropped. In the Senate the procedure is different and Senators announce the introduction of bills from the floor. The Parliamentary Clerk at the Speaker's table, acting for the Speaker and in accordance with House rules, noted on the back of the prohibition enforcement measure that it was "referred to the Committee on the Judiciary." The bill was then sent to the Journal clerk and other clerks where it was given the number H. R. 6810, and records of its introduction were made. When it reached the office of the Journal clerk, newspaper correspondents had an opportunity to read it and send out their dispatches concerning its provisions.

After House records of the introduction of the bill were completed it was sent to the Government Printing Office where nearly 1,000 copies were printed for use of the Congress. Because of the popular interest in the prohibition measure reprints of the bill were ordered later. Printed copies were deposited in the document room, where files of

all bills are kept, and a sufficient number was sent to the Judiciary Committee to accommodate its 21 members. Copies were also sent to the bill clerks of the two Houses and to the Senate document room.

Three days later, June 30, the bill, accompanied by a written report, was reported favorably, without amendment, by the Judiciary Committee. This prompt report without amendment was primarily because the Judiciary Committee, reversing the usual order, had informally agreed on the fundamentals of the bill before it was introduced by its chairman, Representative Volstead. Ordinarily a bill offered by an individual Member is never discussed in committee until the measure has been referred.

When Chairman Volstead reported back H. R. 6810, the Speaker announced that it would go on the Calendar of the Whole House on the state of the Union. Representative Igoe, a member of the Judiciary Committee, gave notice that he and other Members disagreeing to the bill would file later a minority report.

On July 8, 1919, Chairman Campbell of the Rules Committee, reported a special rule from that committee giving the prohibition bill a privileged status and providing for its immediate consideration without awaiting the regular call of the calendar. The special rule allowed 12 hours of general debate, after which the measure was to be read, paragraph by paragraph, for amendment under the rule which limits any Member to a five-minute discussion of a paragraph or proposed amendment. The special rule was adopted after brief debate and a roll call.

Following its first reading, debate was begun on the bill July 8. Representative Volstead asked unanimous consent to dispense with the first reading, but objection was made by Representative Sabath, of Illinois, and the bill was read at length. Debate was resumed from day to day until July 12. Occasionally the bill was laid aside for a few hours to consider an appropriation measure, or other routine matters

before the House. On July 21 consideration of the bill was completed and Representative Good, chairman of the Committee of the Whole House on the state of the Union, formally reported to the Speaker that the committee "having had under consideration the bill H. R. 6810, an act to prohibit intoxicating beverages, and so forth, had directed the chairman to report the same back with sundry amendments with the recommendation that the amendments be agreed to and that the bill as amended do pass."

The Speaker inquired whether a separate vote was demanded on any amendment. Several Members demanded separate votes on specific amendments; all others subsequently were agreed to en bloc. The bill finally was passed by the House of Representatives the next day, July 22, by a vote of 287 ayes, 100 nays, 3 present, and 40 not voting. A motion of Representative Igoe to recommit the bill with instructions to eliminate various drastic sections was defeated 256 to 137, present 2, not voting 35. A copy of the engrossed bill bearing the attestation of the Clerk of the House, was immediately sent to the Senate and D. K. Hempstead, enrolling clerk of the House, announced to the Senate that the House had passed H. R. 6810. The Vice President, Presiding Officer of the Senate, ordered that the House bill be read twice by title and that it then be referred to the Committee on the Judiciary. The reference was made and the committee began consideration and amendment of the House bill. Arising in the Senate on August 18, Senator Sterling, of South Dakota, announced that he had been directed by the Judiciary Committee to report favorably, with amendments, the bill "H. R. 6810 to prohibit intoxicating beverages, etc.," and after reading the bill by title the Senator gave notice he soon would move its consideration in the Senate. The Vice President directed that the bill go on the calendar.

Senator Sterling moved, September 3, that the Senate take up the prohibition bill in Committee of the Whole. The

motion was agreed to without a roll call. It was debated briefly September 4, and on September 5 the bill as amended was reported from the Committee of the Whole to the Senate proper, the amendments concurred in, and the Vice President then announced: "The question is, Shall the bill pass?" It was passed without a roll call.

The House received, September 8, a message from the Senate that the Senate had passed with amendments H. R. 6810. The next day Representative Volstead moved to take the bill from the Speaker's table, disagree to all Senate amendments thereto, and request a conference with the Senate on the disagreeing votes. The motion was adopted, and the Speaker named as House members of the conference committee Messrs. Volstead, Morgan, and Webb, of the Judiciary Committee, and another message was sent to the Senate.

On September 10 the Vice President laid before the Senate the action of the House disagreeing to the Senate amendments and asking for a conference to adjust and compromise the differences and amendments written into the bill. Senator Sterling moved that the Senate insist upon its amendments and agree to the conference asked by the House. The Vice President designated Senators Sterling, Nelson, and Overman as conferees on the part of the Senate. A message was sent to the House apprising it of the Senate action and the first meeting of the conference committee was arranged by the members thereof.

From September 10 to October 6 the amended prohibition bill remained with the conference committee of three Senators and three Representatives who bargained and compromised in reaching an agreement to report to the two Houses. Altogether the original bill had been amended in 285 particulars. Most of the changes were of phraseology, but several were important. On October 6, Senator Sterling submitted to the Senate the report of the conference committee, asked that it be printed as a document and also in

the Record, and that the report lie on the table to be called up later. The conference report was also submitted to the House by Mr. Volstead that same day. Representative Gard reserved all points of order thereon, and the report was ordered printed under the rule.

The Senate acted first on the conference report and agreed to it October 8 without debate or roll call. A special rule was presented in the House on October 10 for consideration of the conference report, this rule providing that all points of order against the report were waived. This action was taken because of allegations that the House conferees had exceeded their authority in the conference committee and the rule required rejection or acceptance of the conference report as it stood. After an hour's debate the rule was adopted by a vote of 205 ayes, 75 nays, 2 present, and 147 not voting. The conference report itself then was agreed to by a vote of 230 ayes, 69 nays, present 1, not voting 129.

Enrolling clerks and proof readers of the two Houses carefully read and re-read the revised bill to see that the measure was letter perfect and that every comma was in place. The bill was then ready for the signature of the Speaker of the House, Frederick H. Gillett. As soon as it was signed, D. K. Hempstead, enrolling clerk of the House, proceeded with a message to the Senate and, on October 15, announced to the Presiding Officer of that body that the Speaker had signed the prohibition bill. The Vice President, Thomas R. Marshall, then affixed his signature to the enrolled copy.

On October 16, Representative Ramsey, from the Committee on Enrolled Bills, informed the House that he had presented to the President of the United States for his signature H. R. 6810, the prohibition act. Ordinarily such an announcement would have written the last legislative chapter in the history of the congressional action—except receipt by the House of a routine message that the President had signed the bill—but a different fate awaited this measure.

The President has 10 days, not including Sundays, in which

to sign or veto a bill. A veto message goes to that branch of Congress in which the disapproved bill originated. So, October 27, President Woodrow Wilson sent one of his secretaries to the House with a message vetoing the prohibition act for reasons given in that message. The Speaker of the House at once laid the veto message before that body and announced that the question was whether the House on reconsideration would pass the bill, "the objection of the President of the United States to the contrary notwithstanding." Representative Volstead moved that the vote to reconsider and pass over the veto be postponed until Thursday, that day being Monday. There ensued parliamentary wrangling among proponents and opponents of the legislation. This primarily concerned whether absent Members of the House were entitled to notice of an important vote on a vetoed bill. Efforts to lay the Volstead motion to postpone on the table failed, but then the motion itself was defeated 136 to 83, present 1, not voting 211, with Representative Volstead voting against postponement. It is permissible in either House that a Member vote against his own motion.

The prohibition bill was next passed over the veto by a vote of 175 ayes, 55 nays, present 3, not voting 198. By direction of the Speaker there was entered in the Record the notice that "so, two-thirds voting in the affirmative, the bill was passed, the objections of the President to the contrary notwithstanding."

A day later the President pro tempore of the Senate announced a communication from the House that it had received the veto message of the President, which was quoted in the communication, and that the House had reconsidered the prohibition bill and had passed it over the presidential veto. The Presiding Officer of the Senate thereupon informed the Senate that the question before it was whether the bill should be passed despite the objection of the President. On such a question, he said, a roll call was automatically required. The Senate immediately proceeded to a vote and

re-passed the bill, 65 ayes, 20 nays, not voting 11. The Presiding Officer declared that "two-thirds of the Senators present having voted in the affirmative the bill is passed, the objection of the President of the United States to the contrary notwithstanding."

And so the national prohibition act became a law without the President's signature and became effective January 16, 1920. Had either Senate or House failed to override the veto the legislation would have died, unless the bill were introduced again and so changed, as suggested by President Wilson, that it would meet with Executive approval.

In a general way the journey of the prohibition bill through the legislative and parliamentary machinery of Congress is typical of that of thousands of bills that have become law. Presidential vetoes of bills are comparatively rare. Still more infrequent are actions of the two branches of Congress in overriding a veto. The two-thirds vote requirement makes this difficult. For instance, the veto of the soldiers' bonus bill in the Harding administration was not overcome. The House mustered the required two-thirds majority, but the Senate could not.

While the majority of the legislation of Congress is enacted by bills, some of its most important legislation is enacted into law in the form of joint resolutions. All amendments to the Constitution are proposed in the form of joint resolutions, which pass practically the same parliamentary process as a bill, but they have to receive a two-thirds vote of each House, instead of a majority. Our war with Germany was declared by joint resolution. Congress has also the power of passing concurrent resolutions, which do not deal with general legislative matters and which do not have to be signed by the President as joint resolutions do; and there are simple resolutions dealing entirely with the business of either the House or the Senate which have only to pass the respective body which they concern to become effective.

Beyond the legislative procedure outlined in the story of

the national prohibition act there are interesting odds and ends of the mechanism employed by the two branches of Congress in turning out a perfected bill. The Senate and House Chambers are located within a few hundred feet of each other in the Capitol Building, but all communications between the two bodies are formal. A messenger or clerk of the House carries to the other end of the Capitol many messages during each session, reporting the action of his body. The arrival of such a message from the House is always announced by a Senate employee substantially as follows: "Mr. President, a message from the House of Representatives," and then the House message bearer informs the President of the Senate that the House has directed him to report the passage of a certain bill, or any other action taken by the lower Chamber. In turn the Senate sends messages almost daily to the House. As the Senate messenger arrives he is met by the Doorkeeper of the House at the head of the center aisle and the Doorkeeper, who is privileged thus to interrupt the proceedings, attracts the attention of the Speaker.

As soon as the waiting Doorkeeper is seen by the Speaker the latter taps his gavel for attention and the Doorkeeper announces: "Mr. Speaker, a message from the Senate." The Senate messenger then reports the substance of the message, delivers it to the House Doorkeeper, who takes it to the desk of the Speaker, and the Senate messenger withdraws. The procedure is practically the same in both bodies whenever a messenger or secretary arrives from the White House with a communication from the President.

The very multiplicity of the bills introduced in each Congress requires the creation and existence of various standing committees. Neither body as a whole could possibly consider all the bills introduced therein. In fact, if one bill out of every 30 introduced becomes a law it is unusual. Consequently, both Senate and House appoint committees on Appropriations, Foreign Affairs, Military Affairs, Naval Affairs, Finance,

Ways and Means, Interstate Commerce, Pensions, Claims, etc. Many bills, particularly those relating to private claims against the Government, pensions, public buildings in hamlets, towns, and cities, are offered with little hope of ultimate approval either in committee or in Senate or House.

After reference to committee, bills seldom are approved in their original form. Amendments in committee, or in Senate or House, may be more or less technical, but it is inevitable that when a committee of from a dozen to 20 or 30 members considers a bill changes will be suggested and approved.

Of course, if a standing committee reports a bill just as it was introduced and both Senate and House pass it in that form, there is no necessity for a conference committee, or even for extended debate preceding passage. Each branch of Congress has equal authority in the initiation of legislation, except that all measures for revenue raising and appropriations originate in the House of Representatives. The Senate, nevertheless, has the power to amend any tariff, revenue, or appropriation bill sent over by the House.

When the House Committee on Ways and Means is about to prepare a tariff bill, or one providing for internal-revenue taxation, officials of the Government are summoned to the Capitol to give testimony. Treasury Department experts, and others, are examined regarding the revenue needs of the Government and the committee then brings in a bill designed to meet the fiscal requirements of the United States for a period of years. In turn, the House Committee on Appropriations hears and cross-examines all important executive officers of the Government, except the President, when it prepares the supply bills at each session of Congress appropriating the funds raised by the revenue measures. Each house has an Appropriation Committee. The Senate has a Finance Committee, which handles tariff and taxation, similar to the Ways and Means Committee of the lower body.

Once a bill is reported in the Senate and House the procedure of debate is radically different. There is no curtailment of

debate in the Senate unless a cloture rule is invoked by a two-thirds vote, and this is practically impossible because of the inherent prejudice in the Senate against a curtailment of discussion.

In the House there is always convenient a Rules Committee, responsible to the majority of the party in control, to shut off debate and, if necessary, to report a "gag rule" which will force through any measure after brief discussion. Such rules in the past decade or so have been invoked by the House regardless of the political party in control, and the spokesmen of the party temporarily out of power have always cried "gag rule" just as the same cry was raised when they, while in power, took a short cut to record the will of the majority. However, the Senate, adhering to tradition, precedent, and conservatism, has practically untrammeled debate and no matter how quickly a measure may be put through the House, the Senate may spend weeks in the discussion of it.

If the House prefers to avoid a special rule from its Rules Committee limiting debate on any bill, there is an agreement between the two sides respecting the time for discussion and the ordering of "the previous question" which automatically ends debate.

On purely political questions, such as consideration of a tariff bill, the time in the House is equally divided between the majority and minority sides. Each side, of course, is entitled to resort to every sort of stratagem known to parliamentary law either to further or to retard passage of the party measure under discussion. Outside of these maneuvers, however, the debate proceeds on an even keel, with both sides having an equal amount of time. If no political or partisan question is involved, the time is equally divided in the House between the proponents and opponents of the bill, regardless of political affiliations.

Comparatively speaking, the rules of both Senate and House are so complex that few Senators or Representatives

fully master them. In each body there are perhaps a half dozen or a dozen men known as "parliamentary sharks," able and willing to take advantage of every technical kink in the rules. The rank and file know little of the intricacies and the finer points of parliamentary procedure.

Yet so complete and comprehensive are the rules of the two branches of Congress that the Senator or Representative who would make the most of the parliamentary situation when a great political battle is being fought over pending legislation must be a master of parliamentary usages in general and the rules of the body of which he is a member in particular. There are three ways in the Senate to get a matter before that body. One is by unanimous consent, the second by making it a special order, which requires a majority vote, and the third is by taking it up in its due course on the calendar. In the House there are three calendars, one known as the Union Calendar, the second as the Unanimous Consent Calendar, and the third as the House Calendar. It is much easier to get a matter through the Senate on an appeal for unanimous consent than through the House. The rules of the House enable the majority, so long as it can hold its forces together, to pass or defeat any measure without much difficulty.

Probably less than one-thirtieth of the bills introduced in Congress ever reach the stage of enactment into law. A larger proportion of bills for the relief of individuals are passed than those of a public nature. Only a few hundred general laws are passed by a single Congress. If every amendment to the Constitution which has been proposed in the last 20 years had been approved by Congress, and ratified by the States, few important provisions of that ancient document would now be effective. When the Sixty-seventh Congress adjourned, for instance, there were pending approximately 100 proposed amendments to the Constitution.

XXVII

THE LIBRARY OF CONGRESS

THE home of the Library of Congress is the creation of American architects, sculptors, and painters. It is not only a beautiful structure outside and inside, but is admirably designed for the purposes it is intended to serve. Situated in the center of a 10-acre plat of ground, and covering more than 4 acres of this, it is one of the best-lighted buildings in the world. It is built in the shape of a large square, inclosing a great central court, which is cut into sections by bookstacks radiating from a rotunda in the center of the square. It has more than 2,000 windows, is 3 stories high, and the central rotunda is surmounted by a magnificent gold-covered dome. No other building in America and few in the entire world are so elaborately decorated with sculptures and mural paintings, and these possess a merit that commands praise from every critic. The main reading room of the Library is 100 feet in diameter and 125 feet from the floor to the dome. It is furnished in mahogany, and has a seating capacity of 200.

When a reader comes into the reading room he fills out an application card, giving the name of the book he desires, and, if he is familiar with the use of the Library Catalogue, the Library number of the book and the name of the author. He signs his name to the card and writes on it the number of the desk he intends to use. He then gives the card to an attendant who knows exactly on what deck, or floor, of what bookstack the desired volume is kept. A pneumatic-tube system connects the reading room with the various

decks of the bookstacks, just as the cashier's office in a big department store is connected with the various counters of the store. The attendant at the central desk puts the card into a little sole-leather case and that in turn into the tube.

By pulling a lever the card is started on its journey to the attendant on the deck where the desired book is kept. A bell is also rung, and this calls the desk attendant to the tube station. He takes out the card, and the number on it tells him exactly where the book is located. Usually he is familiar enough with the majority of books called for to find them without even the number. If there is no number on the card and he can not locate it without the number, he consults a card catalogue on his deck.

When he gets the book, he places it on a rack and pulls a lever. A specially designed book carrier consists of 18 brass book baskets, mounted on an endless double chain. This carrier starts in the reading room and goes down vertically to a point below the level of the basement. Here it passes around a wheel and travels through a tunnel in a horizontal direction to the center of the bookstack. It now passes around another wheel and travels upward again to the top of the stack, where it passes around a third wheel and returns by the same route. The carrier travels at a speed of a hundred feet a minute. When the stack attendant has placed the book on the rack and pulled the lever, the next carrier basket which comes along automatically lifts the book out of the rack and carries it down beneath the ground and then up again into the reading room, where it is automatically discharged into a cushioned box at the central desk.

When the attendant in the reading room wishes to return the book to the stack, the carrier is so arranged that it can be sent to the proper deck simply by pulling a certain lever. The basket containing the book will pass every other deck and will never deposit its burden except at the right place. This carrier seems to possess almost human intelligence, refusing to carry books in any way that might injure them in

transit. In practice, nearly all of the books are sent from the stacks to the central reading room by this carrier, but as a rule they are sent back by messengers, on large trucks.

Each of the bookstacks consists of from 9 to 10 stories, with a series of cast-iron frames supporting tiers and shelves. The largest stacks are 65 feet high. The shelves are of cold-rolled steel, and are finished as smooth as glass. The stacks are lighted by large windows of plate glass, which are attached directly to the window frame in such a way as to make them dust and damp tight. There are no sashes in these windows, and they are never opened. As bright sunshine is harmful to books, it is necessary to have an arrangement which will at all times admit light and yet keep out the direct sunlight. Of course it would be a difficult task to open and shut 200 window shades every time the sun seeks to enter, so it has been arranged that they can all be shut or opened simultaneously by a hydraulic apparatus operated by pressing a button.

At the outset there were three stacks possessing a total of 44 miles of bookshelves, with a capacity of approximately 2,000,000 volumes. Since that time another stack has been built, which adds another million volumes to the capacity of the Library. It is arranged so that still other stacks may be added, and the ultimate capacity will be more than 4,000,000 volumes, counting 9 volumes to the foot. This would make a single row of books more than a hundred miles long. The stacks are equipped with unique provision for economy in the use of electricity for lighting purposes. At every other shelf there is a push button, by which the attendant may turn on the light for one passageway. This continues to burn for about six minutes, and then the lights are automatically cut out. If the attendant wishes to stay longer, he must press the button again. There is an underground book railway leading directly from the Library to a station in the Capitol. This runs through a brick tunnel, a quarter of a mile long. There is an endless chain to which book trays are

attached, and they make the trip from the Library to the Capitol in from two to three minutes. Members of the House and Senate and of the Supreme Court, and the officials of these bodies, have the privilege of drawing books from the Library, and of having them sent to their offices, to the Capitol, or to their homes.

Keeping the Government's books in condition is a formidable task. It takes two men with a vacuum machine a month to clean the books in a single stack. At this rate they can make the rounds of the building in six months. As the stacks are almost dust proof and damp proof, this housekeeping is not so negligent as it sounds. There is no trouble with ants or bookworms. Imported books, which might have become inhabited on shipboard, are disinfected; and in the dry and uncongenial atmosphere of the stacks any hardy survivors perish. At one time cockroaches got into some of the books and developed an enormous appetite for the glaze in the buckram covers. They also ate the gold off the titles and decorations because of the albumen it contained. The Library got rid of these expensive boarders however, and it now uses a buckram binding that is unattractive to insects.

Wear and tear caused by handling books defies regulation. The Library attempts to solve most of its own binding and repairing questions. Old volumes cracking with age and new paper-covered editions are bound in the building by a force of workers detailed from the Government Printing Office. These workers bind 30,000 volumes a year for the Library shelves.

Buckram, utilitarian and unromantic, is supplanting morocco and calf bindings. It is believed that buckram will outlast modern, acid-tanned leather, and it is even contended that it will wear longer than the old, hand-prepared, acid-free leathers. It will be some time before this point is settled, because buckram has been in use only about 25 years, and a fine grade of old leather has been known to stand more

than two centuries of wear. Even collections of important documents are bound in neat buckram covers with the titles stamped in gold on panels of leather. Some acid-free leather is obtained by the Library from savages of Africa who prepare the skins of the Niger goat by a crude native process. This treasured supply is reserved for old and heavy books.

Sightseers in the Library of Congress are generally satisfied to view the great main reading room from the gallery, but when they come to the periodical room they become bona fide readers. They have heard that the Government has the news of the world here and they are eager to find out what is happening back home. As the periodical room receives 664 United States newspapers and 132 foreign sheets, home-town news can almost always be supplied. The latest editions of 302 dailies are filed by States and countries on open racks where they are readily accessible. Back in the stacks are 60,000 volumes of bound newspapers from a valuable file of "The Boston News Letter" beginning in 1710 down to the news sheets of the present year. This current record of American history is of the greatest usefulness. Research workers are always busy at the periodical room tables, surrounded by great volumes of bound newspapers. Of the 7,550 magazines available in this division, 1,500 are filed on open shelves in the periodical room for ready reference. The collection includes not only popular magazines but also specialized publications on a range of subjects from dogs to philosophy and from hairdressing to tombstones.

It is one of the cherished ideas of the Librarian of Congress that the Library shall be made a great national institution, which will unlock all of the treasures of the literary world to the serious students of the United States. Although the greatest library in the Western Hemisphere, there are still many works lacking from the collections of the Library of Congress. The same is true of every other library in America. Not one of them has a complete collection. But what one of them lacks another possesses, and by a properly organized

system of cooperation they may make available for all of them every book possessed by any one of them. Such a system of cooperation will give to the United States a library service superior to that of any other country in the world. The Federal Government has other libraries than the Library of Congress, and they make Uncle Sam the owner of more than 5,000,000 volumes. Each of the principal departments and bureaus of the Government maintains a special library dealing with the subjects with which it is principally concerned. For instance, the Bureau of Education has the world's best library on educational matters; the Bureau of Fisheries has the finest library in existence on aquatic life; the Bureau of Standards possesses a magnificent library on scientific subjects; and the library of the Office of the Surgeon General of the United States Army is regarded as the greatest medical library in the world. Such a system of cooperation has been established between these various libraries that they are practically one as far as research work is concerned.

The first step necessary to a full realization of the high purpose to coordinate the library work of the country will be the making of a complete card index of each publication to be found in the libraries of the country. This will cover many million cards, as each book requires an average of five cards to index it properly, with the appropriate cross references. This index will show in what libraries the rarer works may be had, and application to any library by a student will make it available, even though it has come from the most distant corner of the country. When this movement for the nationalization of the Library of Congress is realized, America will be ahead of any other nation in library matters. Already Mr. Herbert Putnam, the Librarian of Congress, has placed his ideas into partial operation and with the most signal success.

The Library of Congress lends freely to other libraries, and even deposits with them, for long periods, such material

as they may require in their work, they paying the transportation charges. It also invites other libraries to use its bibliographic service, and is ready at all times to furnish reference lists and aids to specific research. The bibliographers, who prepare lists of all works bearing on a given subject, render an important service. Whenever any subject becomes of general interest to the public a bibliography is prepared and made available for general use.

Without losing sight of the fact that the Library was founded for Congress by Congress, and that the lawmakers have the first claim upon its attention, the Librarian is seeking in every way to extend the scope and usefulness of its work. The card-index system which has been established, and the plan of printing duplicate cards for gratuitous distribution to the various other governmental libraries, and at cost to other libraries, have proved the emancipation of the library worker. It costs from 35 to 75 cents per volume to catalogue library books and from 25 to 50 cents to print the cards. It requires no more time nor expense to catalogue a book for all of the libraries of the country than for one, and duplicate cards, after the work of the cataloguing has been completed, are very inexpensive. It is exactly as in the case of a book. The cost of authorship and composition is as much for an edition of a hundred as for an edition of a hundred thousand. More than 3,000 libraries are now using the cataloguing service of the Library of Congress and the number of subscribers is increasing at the rate of about 10 per cent a year.

Some idea of the magnitude of the indexing and classification work of the Library of Congress may be had from the statement that, if a book index of the material on its shelves were to be printed, it would require 15 years to complete the job, at a cost of nearly a half million dollars. Some time in the future this may be undertaken, but the evergrowing list of material received makes such a publication almost, if not entirely, impracticable. The collections of the Library

are growing at the rate of 100,000 books a year, and the 3,000,000 mark has been passed. Only the National Library of France and that of the British Museum have larger collections.

In the marble halls of the Library Building there are always rows of glass cases containing rare prints, manuscripts, maps, and music. These are small exhibits taken from the great collections in the special departments of the Library.

The Music Division has almost 1,000,000 volumes, pieces of music in sheet form, and pamphlets, including many thousands of volumes of full scores of operas and symphonic works. The collection of opera libretti is unequaled. The aim of the Music Division is to encourage and aid serious research. Composers and performers consult its fine collection of books on music, its musical scores, and its file of 150 of the musical journals published in America, Europe, and Australia. Visitors are always interested in the collection of autographs and musical manuscripts of Bach, Mozart, Schubert, Chopin, and other famous composers. Several musical manuscripts by Robert Louis Stevenson attract unusual attention because few people know that Stevenson wrote music. The fact is he played the flute for his health and occasionally wrote melodies, none of which was ever published. The original hand-written copy of Nevin's famous song, "The Rosary," is displayed in the Music Division, and also the manuscript of the rollicking "Stein Song."

The collection of prints is also a large one, and many of these are of rare historical value. There is an especially excellent collection of prints and portraits of the public men of the United States, particularly the Presidents. In these collections one may see pictures of Washington at Mount Vernon, of Roosevelt pitching hay at Oyster Bay, Wilson addressing the war time Senate, and Harding playing golf at Chevy Chase.

In the Manuscripts Division may be seen the papers of the

Continental Congress, and of Washington, Jefferson, Madison, and others, transferred from the State Department together with various collections, the results of gifts as well as of purchases, which are now indispensable to students of American history in search of original material. The total number of pieces in the collection can not be stated with precision, but one single group contains a hundred thousand pieces. The historic Declaration of Independence and the Constitution of the United States have recently been moved from the State Department to the Library of Congress. Experts say that these valuable documents will probably not fade any further unless they are exposed directly to sunlight. Special arrangements are accordingly being made to exhibit them in hooded cases artificially lighted.

Handwriting of the most famous characters in American history is carefully preserved in this division. The two original drafts of the Gettysburg Address are here, in Lincoln's well-known hand, proving that the President did not dash off this masterpiece on an old envelope as he journeyed to Gettysburg. One of the drafts is written on White House stationery, partly in pencil. The first paper and the revised copy differ slightly from the address as it was finally delivered.

The most interesting Washington manuscript, perhaps, is the reply to a certain Major who, in 1782, suggested that Washington become king, as the experiment of democracy seemed to be a failure. The first President immediately seized his quill and wrote (in part): "With a mixture of great surprise and astonishment I have read the sentiments you have submitted for my perusal. * * * If you have any regard for your country, concern for yourself or posterity, or respect for me, banish these thoughts from your mind." To make impossible any future doubt as to his reply to this offer, Washington had his two aids witness the letter.

The Chinese Division has what is now regarded as the best collection of its kind outside of China. Among its strange

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RIVER FOREST, ILLINOIS

and rare books this division possesses the largest book in the world, the Chinese encyclopedia, Tu Shu Tsi Cheng. The Chinese method of bookbinding is to separate each volume into four or more detachable sections like magazines. These are put together in a loose cover fastened with clasps, when the book is not being used. The encyclopedia contains 10,000 separate sections.

The collections amassed by the Library are particularly remarkable considering that some of the departments have existed only a few years. The Semitic Division, consisting mostly of Arabic, Aramaic, and Hebrew literature, was created only 10 years ago, after the late Jacob H. Schiff presented the Government with 10,000 volumes of Hebraica. The Hebrew branch is the most representative in the collection. The Library now has 22,000 Hebrew books in which all fields of Jewish learning, ancient and modern, religious and secular, are well covered. Dr. Israel Schapiro, who has been in charge of the division from its inception, says that in view of the limited extent of the Hebrew literature this is a collection of which this country may well be proud. He reports that the importance of Near Eastern questions has greatly increased the interest in Semitic literature. Due to the fact that Hebrew and Arabic languages have entered a stage of renaissance, a vast amount of the best European and American literature is also being translated into these two old tongues.

The Map and Chart Division has on its shelves 178,000 maps and 5,000 atlases. This division has existed only about 25 years, but in that short time its chief, P. L. Phillips, has made it the most perfectly organized map collection in the world. The British Museum may have a larger collection, but the maps in it are by no means so accessible as those of the Library of Congress. Many valuable manuscript maps relating to the Colonial and Revolutionary Wars, and early printed maps of the Western Hemisphere are on file in this division. A rare and unique map of this country shows the

names for new States suggested by Thomas Jefferson in 1784. The north-central and northwestern territory was then opening up for settlement and Jefferson proposed an ordinance to parcel it off and name it. He suggested at the time such names as Sylvania, Assenisippia, Polypotamia, Cherronesus, Metropotamia, Michigania, Saratoga, Pelisipia, Illinoia, and Washington. Most of these names were never taken seriously. One critic said of them, "Such a mixture of Greek, Latin, English, and Indian perhaps was never seen before." But the next year a publisher printed a tiny pocket almanac containing a picture of the map as Jefferson wanted it.

The Library of Congress is a library of record as well as of research, and it has aimed to make its collections bear testimony on any question concerning which the Government or the people may need information. Its usefulness in this direction may be illustrated in a thousand ways. For instance, in the sixties, 25 head of cattle were driven from a Texas ranch. Eye-witnesses swore that they were driven 50 miles to the left of Twin Mountain. Twin Mountain was not located on any map available to the Court of Claims. If the cattle were driven to one side of Twin Mountain, they were driven by friendly Apaches, and the Government would have to pay for them. If they were driven to the other side, they were driven by hostile Comanches and the Government was under no obligations to reimburse the owner. A map of 1867 on file in the Library of Congress was resurrected and it laid the offense at the door of the Comanches.

A file of the Charleston Courier, bought for a considerable sum, has been widely used to determine the question of loyalty in the case of those who make claims for reimbursement for property destroyed by Federal troops during the Civil War.

The venerable and lamented Ainsworth R. Spofford, under whose administration the Library structure was built, and to whose memory it always will be a monument, once said

that there should never be a censor of books in the Republic. He asserted that no man could tell what portion of the trash of to-day would be the treasure of to-morrow.

The Copyright Office is now a part of the Library of Congress. Here every book, pamphlet, and other literary production protected by the copyright laws of the United States is registered, and copies are filed for the use of the Library. Of course, not everything that is published is copyrighted, and the Library misses some important publications which are needed to make its collections complete.

One of the best-known features of the Government's great Library is the Reading Room for the Blind. This department was established in 1898, with 309 volumes, pieces of music, and maps to stock its shelves. Now it has 10,000 volumes. This number probably does not represent more than 2,500 titles, because the books for the blind are printed in special, raised type in which letters of the alphabet are represented by groups of dots. A former edition of this book, "The American Government," printed in revised Braille required four large, bulky volumes. David Copperfield in revised Braille is a book of 10 volumes.

It is interesting to reflect that all of the wonderful collections in this Government Library started with 6,400 books belonging to Thomas Jefferson. When the Capitol was burned in 1814, the Government's small collection of books was entirely destroyed. Jefferson had what was then probably the best private library in America. Some of his volumes dated back to the fifteenth century, but the collection was mainly remarkable for the range of its subject matter. The Jefferson books were bought by the Government in 1815, and hauled from Monticello to Washington in wagons. Two-thirds of this valuable collection was destroyed by fire in 1851. The remaining volumes, in their faded brown covers, now line the walls in the office of the Superintendent of the Reading Room.

XXVIII

THE GOVERNMENT PRINTING OFFICE

To say that the Government Printing Office is the largest printing plant in the world is not nearly so convincing as to state that if all the postal cards printed here in a year could be stacked the pile would be 200 miles high. If placed end to end they would extend around the world nearly five times. This great plant represents an expenditure of more than $10,000,000 for construction and equipment, and its annual output, based on actual cost of production, amounts to about $11,000,000.

The size of such an establishment can be suggested only by reeling off amazing figures. Try to imagine what it means for a print shop to turn out 92,000,000 income-tax forms in 30 days. This $350,000 job required 1,172,159 pounds of paper cut into 8,775,692 sheets.

All of the Government departments are steady customers of the Government Printing Office. The Post Office Department's yearly printing bill includes about 200,000,000 money-order applications, 60,000,000 special-delivery slips, 10,000,000 change of address cards, and other items in proportion. The number of money orders required, by the way, is considered one of the surest barometers of trade conditions. When the demand for money-order blanks rises, it shows that business is prospering.

The War Department called on the Public Printer to deliver 10,000,000 copies of reports and documents for the Army in one year. The Department of Agriculture had more than 32,000,000 publications printed, so that the results of

its research on such subjects as cows, babies, alfalfa, jelly making, model kitchens, and fox-fur farming might be communicated to the far corners of the United States. The inventive genius of the country keeps the Printing Office busy turning out specifications. Patents, trade-marks, and designs are granted by the Patent Office at the rate of at least 1,000 a week. Providing copies of these to be sold by the Patent Office keeps 50 linotype machines running eight hours a day throughout the year.

Congress makes heavier demands upon the Government Printing Office than does any other branch of the Government. Its annual printing bill amounts to about $2,000,000. The Congressional Record and the printing of hearings, committee reports, and bills cover the major portion of this amount. During a single year the Government supplied Congress with more than a million copies of octavo publications, about 500 copies each of more than 12,000 bills and resolutions, and numerous other pieces of printing in proportion.

The big congressional job is the Congressional Record, so familiar to the American public. The Record in its present form goes back to March 5, 1873. Prior to that, the congressional debates were printed under the title of the Congressional Globe, beginning in 1837. In 1873 the Record had 300 subscribers. Now, 33,000 copies are printed each day while Congress is in session. This Government daily may appear as an eight-page publication one day and have 200 pages the next, all depending upon the copiousness of congressional oratory the day before. Copy for the Record begins to reach the Government printers at about 7 o'clock in the evening, and the first edition is delivered at the homes of Representatives and Senators in Washington at 5 o'clock the next morning. When a half holiday makes real speed desirable, the Printing Office can set a 64-page edition of the Record, and have it stereotyped, printed, wrapped for out of town mailing, and delivered to the post office in four hours.

The most remarkable story of rapid work performed in the Government Printing Office is in connection with the Conference on Limitation of Armament held in Washington in the winter of 1921-22. To print the deliberations of this conference, 910 pages were set in 20 hours, which meant a page of type every minute and a quarter. Within 40 hours of the receipt of the manuscript, bound copies of this great volume were in the hands of the President and Congress. Twenty-three automatic presses were used. The feat elicited general praise and it was said at the time that no other printing plant could have duplicated the performance.

No job is too exacting or too formidable for the Government Printing Office. The War of Rebellion Records, published in 128 volumes, and requiring a 1,200-page index, will perhaps remain for generations the world's greatest undertaking in the printing line. These records contain more than a hundred thousand pages of printed matter, and the whole edition comprises about a million and a half volumes.

The national printing plant has to meet the needs of the executive departments for any quantity of printed matter, whether a simple announcement printed on a single small sheet or a highly scientific work in any number of volumes. All languages and dialects may be represented. The Department of Labor may have an immigration notice printed in seven languages, and the requirements of the Library of Congress have to be met by printing in about 56 languages and dialects.

To handle the varied and exacting orders of the Government, elaborate equipment is necessary. Everywhere in the big, eight-story plant are wonderful devices and machines that seem to act with almost human intelligence. The largest battery of type-setting machines to be found in any printing office is here. There are 99 linotype machines, 100 monotype keyboards, and 126 monotype casting machines. The pressrooms, in which vast editions are produced, are equipped with large, rotary web presses, feeding from a roll

of paper, printing both sides at once, and folding the sheets in book size, ready for binding. There are ingenious automatic presses which print in two colors, perforate, and number the printed sheet, all in one operation.

The fully furnished job room, one of the largest in the country, is capable of printing anything from the smallest card to the largest poster. The bindery, too, is large and important, with an equipment of the best machines known to the art. An interesting section of the bindery is devoted to cloth-bound books, and has stamping presses which stamp the covers in gold, ink, or gilt. Case-making machines glue the cloth, attach the binders' boards, put on the back lining, and deliver the completed covers at the rate of about 1,200,000 a year. A beautiful process in bookmaking is the marbling of book edges, done in a variety of attractive combinations by "combing" or mixing of colors. Then there is gold-leaf work, in which pure 22-carat gold is applied by hand.

There is one publication which is intimately related to the Government Printing Office and peculiarly its own. This is the well-known Style Manual, without which the work of typesetting, proof reading, and revising would be difficult, expensive, and confusing. The Style Manual is the chart by which the office steers. With thousands of manuscripts of all kinds coming into the office, hundreds of men putting them into type, other hundreds reading and revising the proofs, it is evident that some guide in the matter of "style"—that is, capitalization, punctuation, spelling, and kindred matters—is very necessary.

Until recently, the Government Printing Office style book was not universally accepted by Government officials as final authority. There were any number of officials and Congressmen, each of whom regarded his copy as exceptional and wanted it printed according to his taste. Requests of this sort led to expense and trouble. Take the example of one Representative who had been a schoolmaster. When his speeches were set up to be printed, and the proofs were

returned to him for correction, he would go through the pages inserting numerous punctuation marks totally unnecessary to clearness. A comma indicated a slight rhetorical pause. A semicolon showed that here the speaker paused longer for rhetorical effect. A period or dash indicated breathless suspense. This rhetorical punctuation was once widely used in printing speeches. It is now a defunct practice, and not one person in a thousand would understand the reason for so many commas and dashes. The Government printers, nevertheless, had to reset nearly half of this man's speeches because of the extra punctuation.

Not long ago the Public Printer tackled the proposition of making the Government style book a real official standard. A board of revision of Printing Office officials and authorities from other Government agencies was formed. For more than a year this board met and discussed policies. It consulted with scientific experts and dictionary editors. It conducted research in order to be certain of usages by best authorities. The resulting manual represents a final standard for all Government use and is generally considered the world's best authoritative work on printing style. It is, however, a flexible standard. As good usage changes, and as new words become familiar, a board of revision renders prompt decisions to bring the Style Manual up to date.

The proof room of the Government Printing Office is the connecting link between the setting of the type and the printing of a publication. Before a piece of manuscript reaches the public every word has been carefully gone over in order to secure accuracy, not only typographic accuracy, but accuracy in other respects, scientific, historic, economic, literary. There are about 250 proof readers and revisers who handle this work. This book, "The American Government," conforms to the Government style.

The largest publishing house in existence, with the most varied class of publications, naturally needs a distributing agency. In order that every citizen may have full oppor-

tunity to possess himself of any information contained in any of the publications of the Federal Government, even though he may not be able to get them through his Member of Congress or through bureau officials of the Government, the office of the Superintendent of Documents was created. This office conducts a regular bookstore with only Government publications on its shelves. Many valuable works are issued under the guise of public documents, and the document office is expected to use such means of advertising them as will bring them to the attention of the general public. These publications are sold at the cost of production after the plates are made. The Superintendent of Documents handles such best sellers as the Official Postal Guide, which sells to the extent of 24,000 copies a year. The business of the Government bookshop is steadily growing, for in the last dozen years the Government has issued twice as many publications as it did during the whole of the first 121 years of its existence.

The public documents office is naturally in close touch with American libraries, because they look to it constantly for information concerning publications of interest to the public. Formerly, Government pamphlets and books were sent to many libraries that had no desire to receive them and but little use for them when received. Since a selective plan, proposed by the Public Printer, has been put into execution, libraries are no longer being swamped with printed matter unsuited to their localities. One immediate result of this new plan is that many interesting and valuable publications are placed before the general reader at a time when the particular subject dealt with in the volume is of current interest.

President Harding authorized the formation of a board known as the Permanent Conference on Printing, composed of representatives of all the executive departments. This board, acting under the chairmanship of the Public Printer, and with the approval of the Director of the Budget, gives careful study to the printing needs of the several departments, eliminates unnecessary expenditures, and furnishes

the head of the Government Printing Office with a channel through which recommendations for better service may be effective. In the first year of its operation the conference was instrumental in saving the Government $326,000. Under a new system every requisition for printing from a department is carefully reviewed by experts before being filled. Formerly "rush" jobs were a noticeable feature of office work. As these "rush" jobs displaced other work and interfered with the regular and orderly movement of affairs in the office, a charge of 20 per cent extra was made against them. It totaled over a quarter of a million dollars. As the result of the attention given to the subject, "rush" printing cost was about $136,000 less the first year.

The Government Printing Office is proud of its reputation for economy. It makes its own printing inks, totaling about 106,000 pounds a year; printing-press rollers, numbering 3,622; keyboard paper used on the monotype machines, amounting to about 60,000 pounds annually. It has a testing section which analyzes vast purchases of paper and other materials. The office cut down its own annual report from 700 pages of printed tabular matter to 50 pages of readable text; installed a machine division which makes monotype and linotype machine parts; makes its own stencil ink and saves from $1.63 to $2.68 on every pound made, as compared with prices formerly paid to outside dealers. It makes a type cleanser at a saving of more than 50 per cent; tests its gasoline to insure proper quality; and does its own laundry work, which means the washing and ironing of a million towels a year. A memorable achievement was the saving of $1,000,000 through a businesslike method of purchasing paper, and the use of part of this money for the construction of a cafeteria, recreation hall, and roof garden.

Mention of the cafeteria brings us to the human side of the Government's print shop. The story of this printing plant is apt to be only a mass of figures suggesting gigantic tasks. The imagination supplies pictures of whirring presses, high

power machinery, and mountains of paper and seas of ink being turned into reading matter with alarming speed. That is the Government Printing Office, true enough. But back of the machinery stand the employees. It is worth mentioning that matter of the most confidential nature, where good government demands strict secrecy until the proper time for publicity, is constantly intrusted to the Government printers, and they have never violated the trust. There has never been a "leak" of important or confidential information from the Government Printing Office during its 60 years of handling Government papers.

When George H. Carter became Public Printer he took special account of the human factor. Before his time the Government printing plant provided its workers with up-to-date equipment, scientific lighting, and a hospital in case of accident. If they wanted to play or to buy a cooked lunch, they went outside the building. Mr. Carter became aware that 4,200 people were eating around him every day in the most impromptu fashion. He reflected that it was doubtful whether stale sandwiches and tepid milk could be very efficient and cheering stimulants for the after-lunch work period. Every inch of serviceable space in the huge building was used for machinery and workers. The only solution was literally to raise the roof and insert in the unused attic a recreation floor. Here he established a self-supporting, service-at-cost cafeteria and an assembly hall, and on top of it all he put a roof garden—not an elaborate affair with potted plants and fancy awnings, but a shady, railed-in flat roof where employees could spend their rest time out of doors without going into the noisy streets. The huge cafeteria serves meals on a 24-hour day schedule, so that the Congressional Record force and other night workers can eat a hot lunch at 3 a. m., and have breakfast before they go home in the morning.

XXIX

THE SMITHSONIAN INSTITUTION

NEARLY a hundred years ago a British clipper came riding over the high seas with a fortune in her hold—a gift to the United States Government from an English scientist named James Smithson. Why this Englishman chose America as the land in which his name and ideas should be perpetuated is still a matter of controversy. He had no friends here, nor do his papers reveal any trace of interest in the young Republic. Yet he seems to have foreseen "germs of rising grandeur" in the New World. In his will he stipulated that his fortune, consisting of 104,960 gold sovereigns—about half a million dollars—should be devoted to the founding at Washington of "the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men."

The gold sovereigns were at once recoined into dollars at the Philadelphia Mint, after which they lay in the United States Treasury for eight years while Congress argued over methods of increasing and diffusing knowledge. A school for the blind and a publishing house were two of the projects which intrigued Congress. But even then science was beginning to claim the attention of nations. In 1846, when the Smithsonian Institution was established, it set forth as its purpose "to assist men of science in making original researches, to publish them in a series of volumes, and to give a copy of them to every first-class library on the face of the earth." In other words, all the fields of science lay before the new Institution, and it was left to the directors to choose which of nature's mysteries should be probed. The

wisdom of this broad plan was generally approved and it has been followed ever since. As the Institution has received other bequests, and as its fortune has been prudently administered, its work has undoubtedly exceeded even the dreams of the founder. Never, in all probability, has half a million dollars been invested with such far-reaching and amazing results.

The first Secretary of the Smithsonian, Joseph Henry, made possible in great measure the electrical achievements of the present day. His early researches aided in the development of the telephone and telegraph, and of the science of meteorology. He inaugurated the system of daily meteorological observations, out of which grew the United States Weather Bureau. Spencer F. Baird, second Secretary, founded the Fish Commission, which has added so greatly to the commercial value of the Nation's fisheries.

To Samuel Pierpont Langley, the third Secretary of the Institution, belongs the honor of having been the first to plan and build a heavier than air flying machine which could be sustained and propelled by its own power. This epochal invention won no applause when it was brought before the public in 1903. Langley's machine did not actually get into the air on account of defects in the landing apparatus; and as it was customary at that time to ridicule the flying machine idea, he was refused money to continue his investigations. It remained in the Smithsonian shop, and Langley died broken hearted. A few years ago, his machine was taken from the Museum and shipped to a lake in New York for a test flight. It was flown successfully with the original engine.

The present Secretary, Dr. Charles D. Walcott, is a geologist, and has devoted his life to the study of the earliest geological formations, which has brought him recognition throughout the world. Among his achievements are the recognition and naming of fossil bacteria, which are probably the earliest manifestation of life on our planet. There are many imperfectly known regions of North America, scien-

tifically speaking, and for over 20 years Dr. Walcott has spent the summer months in geological explorations in the Rocky Mountains. Mrs. Walcott, who accompanies her husband on his expeditions, is a collector and painter of wild flowers. The collection of 500 sketches of American wild flowers, both eastern and western varieties, which she made for the Smithsonian, is pronounced both unique and valuable to science.

One of the branches of science in which the Smithsonian Institution has specialized for more than half a century is the study of the American Indian. The Bureau of American Ethnology is a permanent part of the Smithsonian. Scientists of this bureau spend months at a time with a tribe of Indians, studying its customs, language, and traditions. There are tribes, once powerful, which are now represented by only a handful of aged warriors and squaws. These full-blooded Indians are furnishing the Government with data which will soon be no longer obtainable. The phonograph has made it possible for the Smithsonian to record songs sung in native language by real Indians.

The bureau conducts researches into every phase of the life and history of the red man in America. One of its scientists has spent every summer in the past 15 years in Mesa Verde National Park, in Colorado, where he excavates and studies the cliff dwellings of a buried and forgotten Indian age. Visitors to the park have for several years been shown interesting ruins of cliff houses and shrines in this park. Up in Alaska, another Smithsonian scientist has been collecting evidence on the vanishing totem pole. Years ago, the totem pole represented a highly developed and perfected art of the Alaskan Indians. The intricate carvings were beautifully executed. For the past 30 years only crudely carved poles have been made, and few good specimens are left in the Indian villages. Fine old examples of the totem carver's art have been cut up for sidewalk material or used as firewood.

The motto of the Smithsonian is "Per Orbem"—throughout

the earth—but its interests are by no means earth-bound. One of the most famous and most important of its branches is the Astrophysical Observatory, where the light and heat of the sun are studied. Some years ago the director of this observatory declared it probable that there were certain variations in the amount of heat received from the sun at different times, and that these variations probably greatly affect the weather of the earth. So he set to work to study sunbeams. From that day to this all manner of traps have been constructed in which to catch these sunbeams and to compel them to add their mite to the sum of human knowledge about the great source of our light and life. All sorts of remarkable instruments have been made to study the sunbeams, and to measure their relative intensity. One of these is known as the bolometer, a device invented by Dr. Langley. The delicacy of this instrument can be imagined from the fact that it contains a mirror as small as a pinhead and weighing no more than the leg of a fly. The bolometer can record a difference of temperature as minute as a hundred-millionth part of 1°. When it is considered that few men are able to guess the temperature within 5°, the sensitiveness of the instrument is apparent. It can easily recognize a change of heat no greater than that given off by a candle 5 miles away.

For two years solar observing stations have been maintained on two of the most barren mountain peaks on earth. One of these is on Mount Montezuma, Chile, and the other is on Mount Harqua Hala, in Arizona. Above these peaks the sky is practically cloudless. Rain almost never falls, and, therefore, opportunities for observing the sun are atmospherically unequaled. To be stationed on either of these mountains, miles from civilization, is a lonely existence; but there are always young scientists who are eager to send out daily bulletins on the sun's output of radiation. As a result of observations and decisive tests, the Astrophysical Observatory believes that there is now no reasonable doubt that the

sun's radiation varies, or that observations can reveal these variations satisfactorily. It has been demonstrated that the variations affect the earth's weather in definite ways. Whether these conclusions can be applied to weather forecasting is now a question for the meteorologists to determine.

In connection with this work, a solar cooker has been evolved on which all the food for the observers at one of the stations for one season was cooked. By this apparatus the sun's rays are focused on a tube filled with oil, connected with a reservoir of oil. The heated oil circulates through the tube and reservoir which are insulated to prevent escape of heat. In the rear of the reservoir are two ovens in which the cooking is done.

In the National Museum, a branch of the Smithsonian, a liberal education awaits anyone who is willing to spend time studying the results of the Institution's work. The utmost care is taken by the curators to present with vividness and accuracy the fascinating story of the world and its creatures. The work of freeing fossil remains from the rock in which they are found embedded is one which would appall anyone but the incredibly patient scientist. One man spent a month cleaning one vertebra of the flesh-eating dinosaur. The bony remains of a moderate-sized turtle 12,000,000 years old were found in over 50 pieces, and the skeleton was put together much as a child fits together the pieces of a picture puzzle. More than 500 days were required to clean and restore one skeleton to be shown to the public. The work of freeing the invertebrate specimens is sometimes equally exacting for these are often as delicate and slender as a fern.

Few visitors to the Museum realize the difficult and often tedious or dangerous work that the exhibits involve. The Smithsonian conducts or cooperates in 20 or more explorations every year which add materially to our knowledge of little known parts of the earth and to the Museum collections. Nearly every section of the globe has been visited by Smithsonian field parties during the past three-quarters of a

century. Recently one scientist returned from South America with a collection of 100,000 insects. Another has been conducting biological explorations in China, in a district abounding in man-eating tigers.

Scientists come from everywhere to study the various collections, which include no less than 10,000,000 objects. Only a small proportion of the total can be exhibited at one time, though practically all of the material is available for student reference. Unusual attractions among the acres of glass cases are the Duckbilled Dinosaur which had 2,000 teeth in one set, and the egg of the Giant Moa which is as large as a football. In one case, in the hall of prehistoric creatures, are shown the bones of a horse's foot of the age when every horse had four toes and was about the size of a dog. According to the layer of the earth in which such specimens are found, the four-toed horse lived 4,000,000 years ago. The collection of African animals, made under the direction of Theodore Roosevelt, is popular with visitors. It numbers about 5,000 mammals, including the giant eland, an antelope as large as an ox, and the square-lipped rhinoceros, which is now confined to regions not easily visited by sportsmen.

Among the historic relics there is the tattered flag which floated over Fort McHenry in 1814, and which inspired Francis Scott Key to write "The Star-Spangled Banner." There is a chair made by Benjamin Franklin and presented by him to Thomas Jefferson. There is George Washington's mess chest, and General Pershing's World War map. Feminine visitors to the Museum are always fascinated by the collection of costumes worn by practically every Mistress of the White House from Martha Washington to Mrs. Harding.

The National Gallery of Art has recently been detached from the Museum and made a separate unit of the Smithsonian. The value of the Government's paintings has been variously estimated at from four to ten millions of dollars. There are many old masters and numerous paintings of

American schools. A unique feature of the gallery is the collection of 22 war portraits. In 1919 a National Portrait Committee was formed to see that the United States obtained a pictorial record of the World War. As the collection was to be national in character this committee decided that two or more paintings given by art patrons of any city might be inscribed as presented to the National Gallery by that city. Chicago, San Francisco, and New York have presented 14 of the 22 portraits by this arrangement. The paintings are of such leaders in the war as Woodrow Wilson, General Joffre, Premier Orlando, the Queen of the Belgians, Herbert Hoover, and Field Marshal Haig.

The most important addition ever made to the art treasures of the Government is the gift of Charles Lang Freer, of Detroit. The paintings, etchings, and objects of art in this collection are valued at about $6,000,000, and the bequest further provided $1,200,000 for the construction of a suitable gallery. Mr. Freer was a collector with a single idea. He spent 35 years making a collection which would demonstrate that good art always, and necessarily, embodies the same æsthetic principles. He believed that the best art of all nations and peoples, no matter how widely separated in space and time, will have the same characteristics. In the Freer Gallery Asiatic and American art are displayed. There are objects that date from 1122 B. C., and there are many paintings by James McNeill Whistler. The famous peacock room is undoubtedly the outstanding feature of the collection. This leather-lined room, originally a part of a London residence, was decorated by Whistler with peacock studies in brown, blue, and gold. When the Detroit millionaire bought it, the panels had to be removed piece by piece and brought overseas. Now the room has been once more taken apart and reconstructed in the gallery at Washington.

Besides the Museum and the Art Galleries, the Smithsonian maintains a National Zoological Park in which to display collections. The National Zoo shelters about 1,700

animals, representing 482 species. The oldest inhabitant in point of residence is a sulphur-crested cockatoo, which has been living with the Government for 33 years. One of the principal aims of the park has been to promote the preservation of species of animals threatened with extinction. The American bison is one of these. Several bison have been secured for the park and have thrived there, and through the efforts of the Smithsonian the Government has established preserves in the West where the bison now breed freely. Uncle Sam's Zoo has over 2,000,000 visitors every year.

It will be remembered that the original plan for the Smithsonian Institution provided for publication of the results of scientific research and for presenting copies "to every first-class library on the face of the earth." This is an important part of the Institution's work. Its publications include reports of its explorations and researches, and papers on practically every branch of science. Through the International Exchange Service, publications by the United States Government are regularly exchanged with those of scientific and governmental agencies of other countries. Fifty-two copies of the Congressional Record, for example, are mailed every day when Congress is in session to the parliaments of the world.

The Smithsonian Institution has, indeed, become "an establishment for the increase and diffusion of knowledge among men." It is a thousand universities and a thousand educations in one. Its activities are practically unlimited and world-wide in their scope. It is an exposition where one may wander for weeks without exhausting its exhibits and its lore. It is a great fulfillment of the prophecy of its founder.

XXX

THE CIVIL SERVICE COMMISSION

APPROXIMATELY 550,000 persons find employment in the executive civil service of the United States. Uncle Sam's pay roll annually exceeds $600,000,000. Salaries range from the $75,000 paid to the President of the United States down to the $5 a year received by the backwoods postmaster, whose compensation is determined by the cancellation of the postage stamps on mail originating at his office.

Government employees get their positions in different ways. The President directly appoints about 16,000 of them. These are the higher officials of the Government, such as Cabinet officers and their chief assistants, ambassadors and consuls, judges of the courts, postmasters above the fourth class, United States marshals, district attorneys, heads of important bureaus, and members of various boards and commissions. About 420,000 employees, constituting what is known as the classified service, receive their positions through competitive examinations taken under the auspices of the Civil Service Commission, a body which has in charge the enforcement of the provisions of the Federal civil service law. Nearly 125,000 secure their appointments without competitive examinations and are said to be in the unclassified service. Most of these are in positions where mental qualifications are not as essential as physical strength. Such organizations as the National Civil Service Reform League contend that the time has come for including many of the positions now filled through appointment by the President, which are in the unclassified service, in the competitive civil service. This is urged as one of the means of

relieving the Chief Executive of a part of the heavy burdens of his office, which, it is argued, should not include the settlement of patronage disputes.

The maintenance of a competent force for the operation of the machinery of the Federal Government always has involved many serious problems. During the first 40 years after the organization of the Government, administrative practice with regard to the civil service seemed to conform to the intention of the founders. The Constitution fixed the term of no officer in the executive branch of the Government except those of the President and Vice President. It was the established practice during these first 40 years to permit executive officers, except members of the Cabinet, to hold office for an indefinite period during good behavior. This practice was changed in 1820 by the four-year tenure act. The spoils system, as it was officially described as early as 1835, was introduced and extended until it permeated the entire civil service of the country, and, in the opinion of leading statesmen, threatened completely to change the form of government.

The fundamental purpose of the civil service law was, therefore, to establish in those parts of the service which are covered by its provisions, a merit system whereby selection for appointment should be made upon the basis of demonstrated relative fitness, without regard to political, religious, or other similar considerations.

All authorities are agreed that the merit system of appointment is a great improvement over the old patronage system. But even to this plan of maintaining an efficient force objections have arisen. The most important of these objections relate to the presence of "dead wood" in the Government service and the difficulty of getting rid of inefficient employees. These objections are rapidly being met, however, by the work of the United States Personnel Classification Board established by recent legislation. This board, in addition to classifying the employees of the Government

on the basis of the duties performed, so that like pay may be given for like work in all departments, is charged with the responsibility of developing a uniform system of efficiency ratings for the employees, which will be used as a basis of promotion and also of the elimination from the service of those whose work fails to meet the minimum requirements.

In the past, one of the criticisms leveled at the Government service has been the retention of superannuated employees, whose period of usefulness had long since been served. While it is doubtful whether all of the criticism made on this ground was warranted, since a contrast of the Government service with that of a large railway system showed that the railroad company had on its pay roll a greater proportion of superannuated employees than the Government, the criticism had a beneficial effect, for it resulted in the passage in 1920 of the civil service retirement law.

This law applies to the classified civil service and to parts of the unclassified service. It sets up a system under which 2½ per cent of the salary of the employee is deducted for a fund from which old-age pensions may be paid to retired employees. The system thus far has been entirely self-supporting. The amount of the retirement fund in 1923 exceeded $25,000,000. As pointed out by Secretary of the Treasury Mellon, the Government is less liberal with its employees in the matter of retirement than are private corporations. Companies which have established retirement systems for their employees ordinarily put into the retirement fund an amount equal to that deducted from the salaries of the employees. This permits more liberal payments to employees upon their retirement. The retirement ages for Government workers are 62 years in the case of railway postal clerks, 65 years for mechanics and post-office clerks and carriers, and 70 years for all others. The average retirement allowance is $500 a year, the maximum allowance permitted under the law being $720 a year.

The character of the examinations given by the Civil

Service Commission in recruiting employees for the Government has broadened rapidly during recent years. Many new lines of activity on the part of the Federal Government have resulted in a demand for expert employees of many kinds. Among these may be mentioned automotive engineers, aviation supply experts, biometric calculators, chemical engineers, commercial artists, confidential protective social agents, dairy manufacturing specialists, disciplinarians, electrical laboratorians, highway economists, insect delineators, oil-well pluggers, and radio engineers. The Civil Service Commission must plan examinations which will serve to test in a thorough and practical manner the special qualifications of the applicants for the positions they seek to fill. The wide range of the activities of the Government may be inferred from the statement that approximately 900 different kinds of examinations are held annually by the commission, of which 700 are educational tests.

The method by which the Civil Service Commission maintains its lists of eligibles is to hold certain periodical examinations for many of the more common positions in various parts of the country. In addition to these, examinations are specially announced frequently for other positions requiring technical or professional training, or a high grade of administrative ability. These examinations are always announced in the newspapers and are broadly advertised through other channels. After the examination papers have been rated, the candidates are notified of their ratings and those who have been successful are placed on the list of eligibles. Only one-eighth of the positions embraced in the competitive service are located in Washington. In administering the civil service law the commission is aided by about 3,500 local boards of examiners, having in all about 11,000 members. None of these boards is composed solely of the adherents of one political part, except in communities where there are no persons of an opposition party available and competent to serve.

When there is a vacancy in the Government service the official in charge of the bureau or department in which it occurs requests the Civil Service Commission to send him a list of eligibles for the position. The commission certifies to him the names of three eligibles, always giving preference to the three on the appropriate register having the highest ratings upon their examination papers. Men and women who have had military or naval service enjoy a preference which entitles them to have five points added to the ratings earned in the examinations, and ten points if they are disabled veterans.

Positions in the executive departments at Washington are, under the law, apportioned among the States and Territories on the basis of population, as nearly as the conditions of good administration warrant. Under the rules no appointing official may reject a single certified eligible in order to reach a name that is not among the three certified unless he can show to the satisfaction of the Civil Service Commission that the eligible passed over is mentally, morally, physically, or otherwise unfitted. The appointing officer, however, may select any one of the three certified.

All of the examinations of the commission are open to men and women alike. There is no discrimination by the commission on account of sex. The employing officer may, under the rules, specify the sex desired when requesting a certification of eligibles. The apparent discrimination sometimes practiced by appointing officers is often due to the conditions of the service. While most of the higher positions in the Government service are held by men, it is nevertheless true that nearly one-half of the Government employees in Washington are women. The percentage of women is lower in the field branches because it includes many large establishments in which most of the occupations are those not often sought by women, such as navy yards, arsenals, the railway postal service, etc. In recent years there has been an increasing tendency to appoint women to important positions.

In the more important positions the number of eligibles is, of course, much smaller than in the less important ones. There may be a thousand eligibles for appointment to a clerkship, for example, where there are only one or two for a position requiring special training or skill of an unusual nature. One reason for this in the past has been that for the ordinary positions in the Government service the salaries have been somewhat higher than commercial salaries, while in technical and administrative positions the compensation paid by Uncle Sam has been much lower than that paid in the commercial world. At present even the salaries paid by the Government in the common run of positions do not compare favorably with those paid by the private employers for the same grades of work. This situation is in process of correction by the Personnel Classification Board in its revision of salary schedules of the Government to afford just compensation for all classes of work performed.

All positions in the classified service are filled through competitive examinations, unless filled through reinstatement, transfer, promotion, or demotion. Included in the unclassified service are a comparatively few so-called excepted positions which may be filled by department heads without examination or upon noncompetitive examination. Under this provision of the rules, positions which require highly confidential service or are of an exceptionally unusual nature, may be filled without examination. National-bank examiners in the Office of the Comptroller of the Currency, the cable electricians of the War Department, special agents of the General Land Office appointed to investigate fraudulent entries and other criminal matters, scouts, buffalo keepers, and park rangers in national parks, and the employees at the leprosy investigation station in Hawaii, are instances of the exception.

A few years ago an interesting comparison was made of the efficiency of the Railway Postal Service during a period before the application of the civil service law to that branch,

with a period following its classification under the civil service law. For the seven years immediately preceding the application to this service of the competitive examination system the number of pieces of mail distributed by each employee annually averaged 1,230,731 and the number correctly distributed for each error was 3,931. The average number of errors made by each employee annually in distribution was 335. For the 20 years after the classification of this service the average number of pieces of mail distributed annually by each employee was 1,504,164, an increase of about 20 per cent over the amount of work performed per employee before classification. For the first decade following the classification the errors averaged 1 to every 8,627 pieces of mail distributed, or 183 per employee annually. For the second decade the errors averaged 1 to every 11,307 pieces of mail distributed, or 131 to each employee annually.

While there are violations from time to time of the rules against political activity on the part of civil service employees, the great mass of Government workers, particularly those in the departmental service in Washington, take little active interest in partisan politics. Under the prevailing rules no employee in the classified service is allowed to serve on a political committee, as a delegate to a political convention, as an officer of a political club, as chairman of a political meeting, as precinct worker on election day, as editor of a newspaper or writer on subjects discussing political matters, or as a speaker before political meetings. These employees are forbidden to circulate petitions having a political object, to accept nominations for political office, to be active in local political campaigns, or to serve as any sort of election officers.

Notwithstanding its restrictions, the Government service has many attractive features. The Government employee is entitled to an annual vacation of a full month. He may utilize another month in sick leave if it is actually needed.

He has the usual national holidays, and half holidays every Saturday during the summer months. He goes to work at 9 o'clock in the morning and quits at 4.30 in the afternoon. To the young man on the farm and in the country town this seems to be an ideal career. Those who enter the Government service and become dissatisfied with their lot claim that it takes the self-reliance and independence out of those who make it their lifetime work. Yet the Government service offers a wide field of opportunity where individual tastes may be developed and where real constructive work—big, interesting, clean work—may be done. It is largely up to the worker.

While it is true that the great mass of Government employees leave their work promptly at 4.30 o'clock in the afternoon, there are conspicuous exceptions. These are of two classes, first the personal assistants of the higher officials. They may not leave their desks until their chiefs excuse them and many, if not most, Government officials work as hard or harder than executives in general business life. It is not at all unusual for a stenographer to a Government official, such as a member of the Interstate Commerce Commission or the Federal Reserve Board, to be kept at work night after night until 8 o'clock, 10 o'clock, or even midnight. This was especially true during the war.

In such a position the annual month's vacation sometimes becomes a myth. A good stenographer or private secretary often is regarded as so indispensable to his chief that he can not find more than occasional week-ends free. Many officials of the Government and their immediate assistants sometimes will go several years without as much as a week's vacation. An important employee in the White House executive offices recently enjoyed the first vacation he had been able to take in 14 years. A second class of late workers is made up of clerks and of technical men who are extremely interested in their work for its own sake. They pay no attention to the clock when the hands reach 4.30 in the afternoon, but keep

at their jobs until late into the evening. Thousands of Government employees in Washington take advantage of the night courses offered by the colleges and universities in the Capital City. One of Washington's universities has more than 2,000 students who work in the departments and who are securing a degree through night study.

Before the retirement act went into effect it was possible to witness some curious sights at the opening and closing hours of the Government departments. Several employees, so old that they were of little if any use to the Government, had to be brought to their jobs in invalid chairs, or in carriages, and literally lifted from these conveyances and carried to their desks where they would sit all day, often doing nothing, sometimes folding a few papers or performing some routine, unskilled work. They clung to their jobs because relinquishment meant penury, and as long as they refrained from any infraction of rules, as long as they were punctual and otherwise technically fulfilled the requirements, they were not dismissed. No one had the heart to dismiss them. Some employees have been known to die in their chairs of old age.

Even though great improvement has been brought about as the result of the retirement act, some old employees still occupy similar positions. Old, infirm, and actually superannuated, they hang on to serve an additional year or two in order to become eligible for retirement at 70 years, for to resign even a few weeks before the time is up, forfeits the pension. These old people are running a race with Time.

Under a recent Executive order a plan is being perfected by the Civil Service Commission, the Public Health Service, and the United States Employees' Compensation Commission, working in cooperation, whereby there will be established a general system of physical examinations for applicants for Government employment. Heretofore the system of physical examinations has been limited in its scope. William C. Deming, president of the Civil Service Commission, believes

that the new order will make it possible to provide against entrance into the service of persons whose physical condition might be a menace to their fellow workers, and is expected to reduce the claims for benefits under the employees' compensation acts. Employees will be guarded against the danger of assignment to duties not in keeping with their physical limitations.

It is a strange fact that respectable citizens who would not dream of beating the grocer's bill will try to cheat their way on to Uncle Sam's pay roll. During one year 496 persons were debarred from examinations until further notice on account of false statements made in applications. These untrue statements related to criminal record, height, weight, age, previous occupation, and collusion or use of aid in examinations. Eleven persons were debarred for attempts to impersonate others in examinations. There are instances where girls declare themselves younger than they are because of their mothers' desire to appear youthful. Scarcely any of the too anxious candidates for jobs are able to fool astute Uncle Sam. For a while a trick may appear to succeed. The applicant for a Government post may even be rated as qualified and duly appointed. But sooner or later the truth is out, and the unfortunate worker is debarred from the service, perhaps with a fine or imprisonment.

While the examination papers of the civil service are confidential, occasionally there will slip through some amusing story of the answers to questions which vie for naive, unconscious humor with the mistakes of school boys. For instance, in reply to a question, "What is water?", an answer was written: "Water is what you save people from drowning in."

XXXI

THE INTERSTATE COMMERCE COMMISSION

THE Interstate Commerce Commission has grown to be one of the largest and most important of all subordinate governmental agencies. It was created in 1887 with an original personnel of five members, having decidedly limited jurisdiction. Its membership has been increased successively to seven, nine, and, finally, under the transportation act of 1920, to eleven. In recognition of the important nature of their work the salaries of the commissioners have been advanced from $5,000 to $12,000, placing them on a level with Cabinet members in so far as emolument is concerned. Many laws have been passed enlarging the duties and authority of the commission, the more important being the one delegating the rate-fixing power to the commission, and the one enacted when the railroads were returned to the private owners after 27 months of war-time Government operation and control.

A few men still are living who were born before there was a railroad in the United States. To-day the business of rail transportation is the key industry of the Nation, producing an annual gross income of $5,500,000,000. Being a public utility, it is regulated in the interests of the public, railroads, and shippers, by the Interstate Commerce Commission. This body has supervision over all common carriers which do an interstate business and which are included in the definition of common carriers written in the interstate-commerce laws. Under recent interpretations of the law, it has been held that the commission can regulate traffic wholly within a State, where such traffic has a bearing on interstate movement.

Congress bases its original authority for the regulation of interstate commerce on the brief line in the Constitution providing that Congress shall have power to regulate commerce. An agency which conveys persons, property, or even more intangible things from State to State comes under this body's jurisdiction; and, therefore, not only railroads but steamboat lines, canal-boat lines, telegraph and telephone companies, express companies, sleeping-car and parlor-car companies, and even pipe lines, other than those carrying gas and water, are common carriers when they convey persons or property or messages for pay. A lumber company may own a railroad line to transport logs from a forest tract to its sawmill and not be a common carrier provided it does not carry a single pound of freight for anyone else and carries no passengers.

The commission's principal concern is with the railroads. More than 260,000 miles of railway come within its jurisdiction. Annually these railroads carry more than 965,000,000 passengers and 1,700,000,000 tons of freight. The distance these passengers are carried is equivalent to 35,500,000,000 miles for one passenger, and the aggregate freight haulage is equivalent to carrying 1 ton of freight more than 300,000,000,000 miles. The average passenger rides about 36 miles. The average ton of freight is moved 1 mile for 1.27 cents. The commission, in effect, is a court of justice for the railroads and for the public using them. When a shipper believes he is overcharged for transportation, he may complain to the Interstate Commerce Commission. His case will be heard, the railroads over which his goods traveled being notified to defend themselves.

As a rule, the procedure is less cumbersome than that of a court. Informal complaints are permitted and some 4,000 of these are filed annually. During one year these resulted in orders authorizing refunds in 3,239 cases, the sums involved aggregating $1,250,000. Such a complaint may merely be stated in a letter and may concern overcharge for a single

ticket or rate on thousands of tons of coal or other heavy commodities. The bureau in charge of informal complaints writes about 165,000 letters a year.

Formal complaints cover every sort of case. They may be filed by an individual, a company, an association, such as a chamber of commerce, by a city, or by a State. They may relate to a single shipment or to an entire tariff covering every rate a railroad or a group of railroads has made. During a typical year some 1,200 formal complaints are filed with the commission and nearly all are disposed of. A few require protracted consideration and are before the commission for two or three years. Every formal complaint is made public when it is filed and due notice must be given each railroad complained against. Dates are set for hearings and arguments, all of these being open to the general public. Twice every day the commission's secretary lays on a table in his office, a copy of each formal complaint, each order, and decision of the commission. Representatives of the newspapers obtain copies and communicate to the public through their journals the gist of the day's business. So vast is a single day's grist that some of the larger press associations have reporters who do practically no work aside from writing the news of the commission's actions.

During a typical year the commission holds about 1,600 hearings. Some are held at Washington, but the commission maintains a staff of examiners who travel to distant places and, in the name of the commission, hold hearings where the facts can best be obtained. On important cases one or more of the eleven members of the commission will go on such a mission. During a single year 225,000 pages of testimony were taken together with voluminous charts and exhibits. After the commission or its examiners have heard the testimony and argument in a case, the body, in closed session, decides. The decisions are printed, served upon the parties, and made public.

Not infrequently the commission, at the request of one

or both Houses of Congress, the President, or upon its own initiative, will make a general investigation of some subject in connection with transportation. Notable cases are those in which the financial affairs of the New York, New Haven & Hartford and the Chicago, Rock Island & Pacific Railroads were investigated to determine whether their stock had been manipulated or other financial irregularities had been practiced. The commission has made investigations to determine reasons and remedies for car shortage and other failures in operations.

This commission not only decides cases arising from complaints of shippers but every railroad or other carrier must in the first instance file with the commission a tariff or statement of rates it intends to charge for transportation of persons or property. During a typical year 135,000 of these were filed. Each is examined carefully during the 30-day period which, the law provides, must elapse between the filing of a tariff and its becoming effective. The commission may shorten this period in special cases. About 5,000 such cases are acted upon in a year. On the other hand, the commission has the power to suspend for a period of months the taking effect of a tariff. This is regarded as an important function as no railroad can charge the rates fixed in a suspended tariff until the commission has removed its suspension order. The purpose of suspensions is to provide time for investigation of the reasonableness of the proposed rate.

The difference of a small sum in a freight or passenger rate may not appear important to the individual, but when it is multiplied by the vast number of persons carried over a given route, it becomes well worth the commission's time. During the war the United States Navy brought a complaint before the commission against the passenger rate from Chicago to Boston. The Navy sought a reduction of 1 penny in the fare for this distance of over a thousand miles. Over a period of years this will mean hundreds of thousands of dollars to the railroads.

Sometimes the filing of a complaint before the commission is like rolling a little snowball downhill. It starts small but grows tremendously. Not long ago a New England woman thought the rate charged for shipping a few cans of milk to Boston from an outlying town was too high and filed a complaint before the commission. The railroads saw that this complaint might set a precedent for milk rates and fought the reduction. Other milk dealers and producers intervened. The milk woman's complaint ultimately resulted in issuance by the commission of an order for a general investigation of milk rates throughout New England. Thousands of pages of testimony were taken and the cases extended over two or three years.

During the last decade the Interstate Commerce Commission has been preparing data and making valuations to be used in the administration of the interstate-commerce act. These valuations are to be used in rate-making, capitalization, consolidation of railroads, and the recapture of excess net earnings. The commission has practically completed the field work and most of the underlying reports. The act requires the commission to ascertain and report the original cost of the railroads and equipment, the cost of reproduction new at the date of valuation, and the cost of reproduction less depreciation. A single sum value is to be stated for each railroad or system. The general theory of valuation is that this single sum value shall be arrived at by the commission giving due consideration to original cost, cost of reproduction new, cost of reproduction less depreciation, and all other evidential facts. The valuation was demanded to a large extent by the popular belief that railroads were overcapitalized and that rates were charged which represented a return upon more than the cost or true value of the railroads. The valuation of over 250,000 miles of railroad in a territory as large as the United States has never been undertaken before in the world's history.

Every item of cost entering into railroad construction, from

the spike which fastens the rail to the cross-tie to the value of great terminals, is included. In the cases of some of the old railroads, such as the Baltimore & Ohio, the first one built on any large scale, the job has been tremendous. Ancient records, some of them little more than personal memoirs nearly a century old, have been used. When the valuation was started, these lines posted notices asking old inhabitants of regions through which the lines passed to send in any information they might have concerning the cost of labor and materials a hundred years ago.

When, not long ago, the commission had under consideration a horizontal rate increase case, it found this valuation work far enough advanced to place a tentative valuation of between $18,000,000,000 and $19,000,000,000 on the American railroad system.

The commission gradually is revising freight tariffs so as to provide uniform classifications. This is a standardization measure whereby a sack of potatoes will be subject to the same tariff classification in one part of the country as in another—an enormous task when the thousands and thousands of different commodities that move by freight are considered.

Recently the commission has been given by Congress the additional power of regulating stock and bond issues of railroad companies. No railroad may sell stock or issue bonds unless the proposed transaction has been passed upon and approved by this body. This is to protect the public against issues of securities which do not have real value back of them. No railroad may build extensions without the commission's permission, nor can a line of road be abandoned without its consent. This has added tremendously to the commission's labors.

Rebating was one of the old-time railroad abuses which upset fair competition and led to the enactment of the interstate-commerce law. Favored shippers were given cut rates. A famous case was that of the Hocking Valley Railroad and

the Sunday Creek Coal Co., in which some $2,000,000 of credit was given by the railroad to the coal company, the bills going unpaid indefinitely. The commission reports to the Attorney General such illegal practices and, in the case cited, both shipper and carrier were indicted. In the early days of the interstate-commerce act, there were some 50 violations a year of this sort, but more recently they have dwindled to a few.

The commission requires all railroads to give adequate reports of accidents and has power to investigate upon its own initiative all collisions, derailments, or other accidents. This close supervision, together with the advance of the science of accident prevention, has worked an extraordinary saving of life and limb in the last decade. The following figures comparing the casualties of 10 years ago and to-day are eloquent. A decade ago there were 450 passengers killed and 15,000 injured during one year. In 1922 there were 205 killed and 5,584 injured. In 1912 there were 3,000 employees killed and 70,000 injured; in 1922, but 1,137 were killed and 28,747 injured.

Legislation making compulsory the proper equipment of trains with safety appliances has been responsible for this saving. In 1893, 77 out of each thousand men engaged in coupling and uncoupling cars on the railroads were injured. By 1912 these figures had been cut to a total among all the thousands of these employees to 207 deaths and 3,000 injuries. By 1922 the figures had been cut to 78 deaths and 1,540 injuries. In 1912 there were 600 deaths and 13,000 injuries among railroad employees due to falls from cars. Ten years later these figures had been cut to 66 deaths and 5,566 injuries. This diminishing casualty rate is due to the mandatory laws requiring constant improvement in the application of handholds, grab irons, ladders, hand brakes, and running boards which are enforced by the commission.

After more than 10 years of investigation and the careful examination of more than a thousand devices, the Inter-

state Commerce Commission has ordered the installation of automatic train-control devices, which are expected still further to reduce railroad accidents. The usual finding resulting from the investigation of many train wrecks was that human fallibility lay at the bottom of the disaster. Even with the most reliable employees, failure to observe or properly to interpret signals has been frequent. The commission long since came to the conclusion that an automatic safety device for train control, a watchman incapable of drowsiness, fatigue, or illusions, was imperative and ordered 49 railroads of the country to install such devices not later than January 1, 1925.

More than 650,000 tests of devices submitted to the commission were made. One hundred and forty-two engines were used and a total of 721,581 miles were traversed by them in making the tests. The commission has not recommended any special make of train-control device, but has adopted and prescribed specifications and requirements which have been found the most reliable. In general, the device must be such that automatically controlled apparatus will bring trains to a stop when anything wrong has happened either to the track or to the apparatus, when a collision is threatened, or when there is an obstruction on or a defect in the track. If anything happens to the device, the train control operates just as it would if anything else had gone wrong. Thus the system warns not only of outside danger, but of its own defects, and malicious tampering should not result in train wrecks. Tampering with the system would stop trains as surely as the imminence of a head-on collision. By automatic connection with the trains themselves they bring them down to safe speeds should the engineer disregard signal indications. The man in the cab may be asleep or dead at the throttle and still the train will be halted.

The cost of installing devices to stop trains and control their speed automatically averaged about $500 a mile. In addition, it costs approximately $500 per engine to equip

locomotives with the control apparatus. This means that to equip the 260,000 miles of American railroads and the 70,000 locomotives will cost approximately $165,000,000. Great as this figure is, it is believed that in the long run the railroad companies will find this expenditure a good investment because millions of dollars are being paid out by them annually in damages to the families of persons killed or injured in train wrecks.

In installing the equipment the railroads have found that different types of devices must be employed in different localities. In the North, where snow and ice often cover the tracks, the device which forms a contact with the moving locomotive may be impracticable. It may become frozen or a snowplow may put it out of commission. As an illustration of the ingenuity of this device which, without the assistance of manual operation, can detect danger and, even against the judgment of the engineer, halt a train or slacken its speed, 1,120,000 test operations on a given line over a two-year period resulted in but two errors. The inauguration of this system is expected to reduce railroad accidents to a minimum.

Another important work conducted by the Bureau of Safety of the Interstate Commerce Commission is that of testing steel rails. After an accident due to the breaking of a rail, a careful analysis may be made of the metal, the manner of its manufacture, the ore used, and every other aspect. This has resulted in the advance of the art of steel rail making, experience showing where the stresses come, and what should be done to withstand them.

Another important work done by the commission for the safety of the traveling public and railway employees is the inspection of locomotives. Every single part of a locomotive and its tender is inspected monthly under the general supervision of the commission. Reports must be filed with the commission on the condition of each engine and defects must be repaired promptly. This inspection service prevents

scores of boiler explosions, and other accidents likely to prove disastrous on the 70,000 locomotives of the country. A special act, known as the ash-pan act, is now in effect, requiring the equipment of locomotives with ash pans that can be cleaned or dumped without the necessity of a person going underneath the locomotive. In former times the firemen had the hazardous task of crawling beneath the engines to clean the ash pans.

This branch of the commission also has required the equipment of engines with headlights which will enable an engineer to distinguish an object as large as a man 800 feet away. In the North, where the frost forms on window glass, locomotive cabs must be equipped with what are known as clear-vision windows, a type of double window which does not frost and therefore enables the engine driver to have a clear view of the track.

Investigation has shown that many train wrecks have been due to overwork of engineers and other members of train crews. To prevent this the hours-of-service act was passed. It forbids the employment of a man connected with the movement of trains more than a limited number of consecutive hours out of any 24-hour period. Even though he desires to work extra time to make additional pay, he may not do so, for it has been recognized that the tired and sleepy railroad man is a source of danger in train operation. Railroads which compel or permit men to work too long are heavily fined.

The transportation act of 1920 set up a new system for dealing with disputes between railroads and their employees. A Railroad Labor Board was created consisting of three members to represent the workers, three to represent the railroad employers, and three to represent the public, one of the latter being the chairman. As a general principle, railroad companies and their employees seek to solve their disputes among themselves; if they can not, they go before the Railroad Labor Board, which acts as a tribunal. Questions

of wages, hours of labor, overtime, ratings, union relations, seniority, and allied matters come before this body. The board has its headquarters in Chicago.

The commission is clothed by Congress with authority to require all the carriers to conform to a standard system of accounting. Only by such uniform practice can the vast volume of accounting be handled. Each month the class 1 steam roads, approximately 190, file with the commission statements of their revenues, expenses, and earnings, minutely itemized. It is a punishable offense for a carrier to keep any but the standard record. This practice enables the commission to know where every dollar comes from and where it goes.

Such regulation is necessary to prevent a carrier from unfairly charging up to operating expenses money used in making the property more valuable, or in other ways obscuring the bookkeeping. In addition to the monthly statement, each carrier must file an annual report which must tally exactly with the figures submitted throughout the year.

One of the most interesting tasks the Interstate Commerce Commission ever has had has been that of supervising the adaptation of standard time to railroad operation in relation to daylight saving. Time is one of the most important elements in the operation of railroads. When one State adopts daylight saving and the adjoining one fails to do so, curious time-table consequences are produced. The commission has spent much effort in an attempt to standardize the time of railroads and has the plan fairly well worked out. Strange exceptions to prevailing time result. In order to keep the same time for one railroad, the time zones sometimes are invaded, one road operating on eastern time, for instance, while a nearby parallel line is employing central time.

In its investigations arising out of regulation of the express companies, the commission found that their business has been revolutionized by the Government Parcel Post Service. Before Uncle Sam went into the parcel-post business the

average express package weighed 33 pounds. Now the Postal Service handles practically all the small packages and the weight of the average express shipment is 82 pounds. Rates have been increased. Ten years ago they averaged 1.54 cents per pound; now they are slightly over 2 cents per pound. Approximately 300,000,000 packages are carried a year. The commission has an intricate job in regulating, on behalf of the Post Office Department, the rate of railway-mail pay—what the railroads are to be paid for carrying the mail.

The commission also, under an act of Congress, awards medals of honor for conspicuous heroism in life-saving in connection with railroad service. These medals are rare and much prized. In all, this commission is charged with the enforcement of some 25 statutes relating to the transportation system of the Nation.

The recent increase in the number of members of the commission to eleven and the steadily growing volume of work have resulted in the dividing of the body into five divisions, each of which sits as a sort of subcommission. One has general jurisdiction of rate matters, a second of valuation and safety matters, a third of financial affairs, a fourth of car service, while the fifth is a law section. When a division has threshed out an important rate case thoroughly, the whole commission ratifies the final decision.

From January 1, 1918, to March 1, 1920, the railroads of the United States were operated by the United States Government. By presidential proclamation, a Director General of Railroads was appointed and the American people entered upon an experiment unique in their annals. This superrailroad president, William Gibbs McAdoo, had in his charge 555 entire railroad systems, beside some short lines. Out of the 260,000 miles of railroad in the country, 241,194 miles passed under the control of the Railroad Administration.

The Nation was in the midst of war and unified control was deemed to be imperative. Under a system whereby railroads

are competing with each other, the best war-time cooperation can not be obtained, so Uncle Sam stepped in and for 27 months worked as railroad president, engineer, conductor, and everything else. With troops and munitions and food to be rushed to our Army and the armies of our Allies every possible short cut was taken. An example of what railroad unification meant is furnished in the situation in Ohio where two railroads at one point ran within a few yards of each other, but subsequently diverged many miles. A shipment started on one of these roads, to reach a destination on the other would have to travel a long, roundabout route. Under Government unification, a few yards of track were built to connect the two.

When, during the great storm of 1918, the coal shortage became acute, trainloads of coal were run through the Pennsylvania tunnels, under the Hudson River, right into the magnificent passenger station at New York City. This action, ordered by the Director General of Railroads, would have been practically impossible under private control. In many similar instances, Uncle Sam cut the Gordian knot, saved cities from freezing, industrial plants from shutting down, and soldiers from going without food or ammunition.

The bustle of war, on top of troop movements, vastly increased passenger traffic. In 1916, before the United States entered the war, the railroads performed 34,500,000,000 miles of passenger transportation; in 1919, when Federal control was in full effect, 46,200,000,000 miles of passenger transportation were performed on Uncle Sam's trains. Freight traffic increased in like proportion.

Unification aided in handling this business. Where competing railroads ran parallel trains, the unified railroad operated by Uncle Sam ran one. Instead of a separate ticket office in cities for each railroad, consolidated ticket offices, where a ticket for any train on any road could be purchased, were established. Freight shippers were urged to economize by loading more goods on cars. As an example, the average

loading of paper was increased from 40,000 to 55,000 pounds per car. This saved both cars and locomotives.

In cooperation with the United States Fuel Administration the Railroad Administration was called upon to assist in regulating the distribution of coal, and a system of car priorities was established. Under it, the manufacturer making shells got coal before the man making candy. Hospitals got coal before theaters.

To meet the rising costs incident to the war, Uncle Sam, while acting as railroad president, increased freight and passenger rates about 30 per cent and increased wages of railroad employees proportionately.

A phenomenon of this period was the increase in women railroad workers. The number of employed increased from 31,000 to over 100,000 under Federal control and, for the first time in the history of the Nation, women worked on the tracks as section hands, while the men were at war or in the munition plants and shipyards.

The Railroad Administration created a number of special boards to handle labor disputes and also organized shippers committees throughout the country to assist in unifying and standardizing traffic. While Uncle Sam was president of the national railroad system, he retained the former presidents of the various systems as subordinates in charge of their roads, but wholly subject to his orders. Many of their salaries were sharply cut. The railroads were turned back to their owners on March 1, 1920, but the Railroad Administration remained in existence to liquidate its vast business. Two or three years were required to settle up all accounts.

XXXII

THE FEDERAL TRADE COMMISSION

As most sports, from baseball to pugilism or lawn tennis, require an umpire or referee to insure fair play and good sportsmanship among contestants, so American business requires such an agency to insure absolutely fair competition in the struggle of commerce. This national business referee is the Federal Trade Commission, created by Congress in 1914. In addition to being a referee, the commission also is designed to act as a sort of big brother, ready with good advice to prevent disputes and to aid competitors in keeping out of the courts.

Although in a sense a tribunal of justice, the commission is not a court in the ordinary sense of the word. In legal phraseology its method of procedure is described as quasi-judicial in form. Before its creation there existed in the Department of Commerce a Bureau of Corporations which studied the activities of the great business organizations of the Nation. The Department of Justice might bring suit under the antitrust laws against a corporation on the basis of the data assembled by this bureau. Its scope, however, was considered too limited and consequently the Federal Trade Commission was erected.

The procedure of the commission is unlike that of any judicial body in this country. In all usual disputes a complainant comes before a tribunal and accuses the man or corporation he thinks guilty of injustice or crime against him. The accused thereupon is haled into court and made to answer. Plaintiff and defendant confront each other and, with the aid of counsel, thresh out their dispute while judge and jury decide which party is in the right. This is the

procedure in criminal and civil courts, before the Interstate Commerce Commission, and before every other such instrumentality of justice. The Federal Trade Commission procedure is novel and different.

A manufacturer believes that some other manufacturer in the same line of production is employing unfair methods of competition against him. He feels he is damaged by conduct of his rival and moreover that trade generally is disordered thereby. He goes to the Federal Trade Commission and lays his complaint before that body. This is a confidential proceeding. The commission makes a preliminary inquiry to determine whether the public interest is involved and whether or not the complainant is the victim of an actual or an imaginary injury. If just cause for a grievance is found and the element of public interest is present, the commission then issues what is termed a formal complaint. It is directed against the offending manufacturer, and is based upon the commission's reason to believe, and is not a judgment. The respondent is cited as to a specific unfair practice, not by his competitor but by an impersonal, remote Government agency. He is given a certain time in which to file an answer to the complaint, when the commission will set a date for a hearing. Testimony will be taken and argument heard on both sides. All through this, the actual complainant does not appear at all, or, at least, need not appear. The facts are so brought out. Then in a final hearing before the commission, counsel for the commission presents one side of the case and counsel for the respondent the other side. If, after a full hearing and argument, the commission does not confirm its reason to believe that the method used was unfair, it will issue an order dismissing the case and the whole matter drops. If, however, the commission finds that the facts adduced prove that a grievance exists, it will issue an order requiring the defendant to "cease and desist" from the objectionable practice.

Here, again, is found a unique method of administering

justice. Unlike any court of justice, the Federal Trade Commission has no marshals and no direct means of enforcing its orders. The theory upon which the law was drawn was that the cold light of publicity thrown upon an unfair method in the business world and the user of it would prove sufficient to cause him to mend his ways and eliminate the method. The complaint, the proceedings, and the final order are given the fullest publicity and the method condemned and the user of it placed before the whole country as a wrongdoer. As a last resort the commission may, to obtain enforcement of justice against a respondent who does not of his own accord obey its order, turn the whole case over to the United States Circuit Court of Appeals. This court proceeds to examine the findings of the commission, and, if that body is upheld, the court may then use its police powers to compel enforcement of the commission's orders. Likewise the respondents may appeal.

Many a tradesman or manufacturer, jobber or retailer, has gone all through a Federal Trade Commission case without ever having the remotest idea what man or what company originally complained against him. This procedure has been criticized by business interests on the ground that it is repugnant to the rules of common law. Nobody should be both prosecutor and judge, it is contended. On the other hand, the statement is made in reply that the Federal Trade Commission enables a small and weak business to complain against a great one and be secure from business persecution. It has been claimed, before this commission was set up, that if a small manufacturer openly complained that a big competitor in his line was treating him unfairly, and went to court about it, the big one sooner or later, by price cutting and other forms of discrimination, would drive him out of business.

In its comparatively short life the commission has handled some very interesting cases. It has proved a source of justice in unfair competition cases where no other source was avail-

able. A typical case of this sort is that of a Maine company which for a hundred years had used a certain symbol to mark a high quality product. It had failed to have this symbol registered as a trade-mark. Competitors began using it. Years ago the company sued in the regular courts to protect its distinctive symbol, alleging that competitors were getting the benefit of its good reputation by pirating its mark. The courts held against the company on the technical ground that the trade-mark never had been registered and that it was too late to register it. There seemed nothing for the company to do to protect itself. It was true that it had neglected for many years to register its mark, and thus other companies could lay claim, although not so old a claim, to it. Then the Federal Trade Commission was created and the company brought the matter to the attention of that body. The commission issued formal complaints against the competitors, not for infringement of trade-mark rights, because there was no registered trade-mark, but for acting unfairly in using a trade-mark which for many years was known to be the distinctive symbol of the company. After hearing all sides, the commission ordered all the competitors to abandon the use of the mark on the ground that to use it was unfair competition. What the company failed to get from even the Supreme Court of the United States, it obtained from the Federal Trade Commission, not on a technicality of law, but on a basis of what constitutes fair competition.

Another interesting case taken up by the commission was that involving the giving of bribes and granting of favors by rich companies. Small dealers in various lines complained that their big, rich competitors, allegedly to drive them out of business, had their agents give money, gifts, and favors to buyers in order to induce them to favor the big companies in making purchases. The small companies, operating on narrow margin, could not afford to bribe their way to sales. It was shown that all sorts of bribes were given—money, theater tickets, baseball tickets, various gifts, and dinners. The com-

mission issued orders putting a stop to this practice, which is known as commercial bribery. The Federal Trade Commission realizes that the business of poor competitors, or competitors who are opposed to employing such tricks, is injured thereby. Therefore, it declares the practice to be unfair competition and orders it stopped. All must do business on an equal footing, sales being made on the basis of price and merit of the goods.

The commission undertakes extensive inquiries on its own initiative and at the behest of the President or Congress. It made the famous gasoline price investigation, showing who controlled the oil resources, the refineries, the pipe lines, and the tank farms, and what economic elements influenced the price of gasoline. It made the general inquiry, during the war, into the retail prices of food, exposing profiteering in many lines. It has investigated the meat packers, showing to the public view all the details of their business, including the prices at which they buy and those at which they sell. The coal industry has been the subject of its scrutiny, the steel industry, and many others. If a great steel or other industrial merger is proposed, the commission looks into it to determine whether unfair competition will result and if it has reason to believe such to be the case, it will summon the interests involved before it under an allegation of violation of law. Large deals have been stopped by such action by the commission.

It is one of the most active of Government agencies. On the same day it may handle the case of a corner grocer in a small town and the case of the biggest trust in the country. The same general rules of fair play are followed in each case, the single object being an open field and fair competition for all kinds of business activity. The public interest must be involved. The commission does not seek to settle merely private quarrels. If violations of the Sherman antitrust law come within its knowledge it may refer these to the Department of Justice or report them to Congress.

Various additional functions have been assigned to the commission. Under the Webb-Pomerene law, groups of exporters may combine into what is called an export trade association. Before doing so they must file their plans and papers with the commission and must report to that body which keeps an eye on their operation. The commission is charged with enforcement of the law prohibiting interlocking directorates among great banks and industrial corporations. During the war, patents owned by alien enemies were seized and their handling was turned over to the commission which licensed loyal American companies to use the patents. The commission is charged especially with the prevention of what are known as tying contracts in business, a type of contract deemed to be pernicious and tending to monopolize essential commodities and maintain high prices. The same jurisdiction is exercised over monopolistic holding companies. A court may call upon the commission to dictate the sort of a decree which should be handed down in an antitrust suit. It is constantly studying prices and making them public to the end that the people need not be deceived about production costs in relation to retail prices.

During its existence the commission has conducted about 60 investigations either at the direction of Congress or the President or on its own initiative. These have covered a wide range and have made a vast amount of information available to the public.

Each of the five commissioners is appointed for a seven-year term and receives a salary of $10,000 a year. When it is stated that these commissioners have, to date, handled some 4,000 complaints of unfair competition, it is seen that they are busy men.

XXXIII

THE VETERANS' BUREAU

In the wake of the World War, into which the United States poured billions of dollars and millions of men, there came inevitably the problem of the treatment, maintenance, and rehabilitation of the disabled veterans of that great conflict. That debt of the Nation to its disabled soldiers, sailors, and marines brought into existence the United States Veterans' Bureau which has become the chief money-spending agency of the Government, with the one exception of the Postal Service. Since the war and the enactment of soldier-relief legislation the annual appropriations for the Veterans' Bureau have exceeded $400,000,000. The Post Office Department expends more, but its expenses approximately are offset by postal revenues. The Veterans' Bureau, an independent establishment administered by a Director appointed by the President, spends more money for humanitarian purposes than any similar institution anywhere and has more clerical employees than any other single agency of the Government.

This bureau is a complex organization with district offices, subdistrict offices, and hospitals and training schools in every section of the country. Its wards are the mental and physical victims of a cruel war. They include the sightless, the legless, the armless, the deaf, the shell-shocked, and the gassed and tubercular veterans of the war of many nations. Men who were driven insane, by the stress and flame of battle, are on its rolls. Starting with the Bureau of War Risk Insurance, an agency designed to afford life insurance at exceedingly cheap rates to American men going into battle,

the Government learned that its obligations to its fighters were so great that there should be a centralized agency of help and the Veterans' Bureau of to-day is the result. It is an organization of many ramifications with nearly 30,000 employees and scores of hospitals and training schools.

At the peak of its allowance and allotment work the bureau had on its rolls 60,157 Smiths, 51,428 Johnsons, 36,722 Browns, and 31,347 Joneses. It had also the names of 31,734 Williams, 16,899 Moores, and 25,628 soldiers by the name of Davis. The Andersons numbered 26,144, the Thompsons 17,415, the Wilsons 19,909, the Millers 29,842—and so on down the line of Clarks, Martins, Myers, Nelsons, Walkers, and Whites.

In addition to confusing numbers there were complications of spelling. The name on official records of the Smith family was sometimes spelled plain Smith, again it was Smithe, then Smyth, Smythe, Smit, Smyt, and Schmidt. There were 3,096 John Smiths on the rolls at one time, and 4,687 William Smiths. Of more than 51,000 Johnsons, 3,010 were William Johnsons. In addition the records were filled with Johns, Jims, and Georges, whose last names were written as Johnson, Johnston, Jonson, Johns, and Johnstons. In view of this showing, the bureau, during and after the war, pleaded a defense if it sometimes misplaced a file relating to the allotment, allowance, or insurance of a soldier, sailor, or marine. The illustrations might be continued through the list of familiar surnames, such as Greene, Green, Harris, Anderson, Allen, Taylor, and Miller.

In its rehabilitation work the bureau has aided more than 300 blinded veterans of the World War, and approximately the same number partially blinded. Seeking vocational training, these sightless men have run the gamut of vocations. Each blind man must have a prevocational training of six to nine months, consisting in courses of the reading of Braille, the writing of Braille, touch typewriting, music, and various kinds of hand training such as basketry, woodwork-

ing, hammock making, and the like. While such manuals have certain therapeutic value, their main value is to teach the newly blinded man to use his hands in place of his eyes. Wonderful results have been accomplished by such courses of Government training. Blinded veterans have been taught to be poultry raisers, chiropractors, music teachers, storekeepers, cigarmakers, automobile tire vulcanizers, basket makers, typewriters, masseurs, and even attorneys at law.

There is in Washington to-day a sightless veteran who learned at the Evergreen Training School, near Baltimore, to operate a typewriter by the touch system. He is employed by a large business house. His employers wrote the Director of the Veterans' Bureau that his services were entirely satisfactory. The blinded veteran himself wrote that in consequence of his training he was typewriting about 40 business letters a day. He added: "I have a good job, a good wife and baby, and I am sticking to them all like fly paper."

One of the remarkable rehabilitation stories of the Veterans' Bureau is that of Milton Bronner, of Ohio, a veteran who came out of the war minus both eyes and hands. Sightless and handless Bronner resolved to carry on. His successful struggle was such that the late President Harding wrote him that he admired his "cheerful hopefulness and progress toward real accomplishment." The Secretary of the Navy also regarded his case as so exceptional that he wrote this valiant blind man a letter of cheer. Bronner had been a sailor. Without eyes or hands, he first learned to comb his own hair by a mechanical appliance fastened to his wrists. Subsequently, while attending a Government school for the blind, he learned how to operate a typewriter by means of artificial hands. While in training he received $100 per month, tuition rate, and the salary of a special instructor. The bureau supplied a special typewriter attachment to overcome his disability. After his preliminary training he took up the study of law and to-day is on the way to a successful legal practice.

Another blind trainee of the bureau qualified in the storage-battery department of a Pittsburgh electrical company. Still another became the song leader of a community service in Cincinnati. A third became regional representative of the bureau in six Western States, and is teaching his blinded buddies to overcome their disabilities. Dozens of other trainees are now raising poultry, teaching music, making baskets or woodwork, giving lessons in singing, weaving rugs, making brooms, keeping store, and doing many other things which the Government has taught its blind to do.

Another illustration of the human side of the Veterans' Bureau is shown by the case of the late Bennie F. Taylor, of Crystal Springs, Miss. His case was unique among all the thousands of insurance allotment and compensation files of the bureau. Taylor, a soldier, died in 1918, and left an insurance policy, naming his father as beneficiary. Shortly thereafter his father died and the insurance belonged to the next of kin under the permitted class. His relatives responded to the bureau's request by submitting a list of names 5 feet in length, the longest ever received in any insurance benefit application. The list contained the names and addresses of 9 brothers, 6 sisters, 6 uncles, 6 aunts, 23 nephews, 19 nieces, 6 brothers-in-law, 8 sisters-in-law, and a stepmother. Of this total of eighty-odd living relatives, exclusive of cousins, 38 bore the name of Taylor and the remainder included the names of Berch, Campbell, Davis, Goss, Summers, Broadwater, Lemon, Bornes, Ponder, Thorton, and Manning. After a survey of this "five-foot family tree" it was found that some 50 of the number were residents of Crystal Springs. The oldest beneficiary was 70 years old and the youngest had just been born. Final action upon the case was in accordance with the Mississippi inheritance law. Since the father of Taylor, the beneficiary under his policy, died without leaving a will, and numerous installments on his policy were due, a new adjustment was required to establish the beneficiary rights in a $5,000 policy.

The bureau announced that its final action to clear up the policy, exclusive of overdue payments, would result in paying the stepmother of Bennie Taylor and 15 brothers and sisters monthly installments of $1.92 each.

For a time the Government divided responsibility in the care of its ex-service men. So urgent, however, became the problem of giving generous and adequate assistance, both financial and physical, to the disabled veterans that the several relief agencies were combined and merged by act of Congress into the Veterans' Bureau. Prior to that the Bureau of War Risk Insurance, established early in the war to write Government insurance for the American fighter, and to handle allotments from his salary made to dependents back home, carried on much of the work of the present bureau. Hospitalization for the disabled was administered by the Public Health Service, another agency of the Treasury Department. The Federal Board for Vocational Education had charge of the rehabilitation work, or the teaching of a trade or profession to the incapacitated soldier.

This divided responsibility, and disjointed machinery of administration, resulted in confusion and delay. There were complaints from the floor of Congress and elsewhere, and unquestionably there were instances of suffering incident to delay in handling claims for allotments, compensation, or insurance. The machinery of relief inevitably was slow moving. There were too many engineers in charge, and their posts were too widely scattered. For instance, there was a time when soldier-relief activities of one kind or another were carried on in 11 different buildings in Washington. Files were hauled back and forth and possibly scrambled in transit. Claimants charged that they became weary going from pillar to post seeking the proper officials to handle their pleas for an assistance that the Government was trying its best to give. No private business could have endured long under such a system.

As stated in the debates in Congress, legislation for a con-

solidated Veterans' Bureau was needed to stop the delays which had been complained of in meeting our obligations to our national defenders. The extent and influence of that organization may be shown by a few figures: The bureau has outstanding insurance policies totaling the enormous sum of $2,866,469,210.88. These policies were written after this country entered the World War and Congress created the old Bureau of War Risk Insurance. Each man of the armed forces of the United States was entitled to take Government insurance, at a very low rate, in amounts not exceeding $10,000. Of the outstanding insurance, term insurance policies total $1,632,053,000. The amount of permanent, or converted insurance, on the lives of the soldiers, sailors, and marines, is $1,234,416,000. The total number of men carrying insurance is approximately 538,000. The peak number of insurance policies outstanding was reached in January, 1919, when there were about 4,500,000 applications on file. A great majority of policyholders, however, permitted their policies to lapse after peace came. The families of insured men who died during the war were paid in accordance with the terms and amounts of the policies.

Up to August 1, 1923, the bureau had given vocational training to 168,465 ex-service men. That represented the total number of men who had entered training. Some of them died in training, others did not complete the course, but at that date the bureau was able to show that the men rehabilitated, and who had completed the course, numbered 44,592, while 76,311 were undergoing training. The total number of Government owned or controlled training schools is 30, and approximately 1,800 private schools are training ex-service men under contracts made with the bureau. The largest training centers of the Government are at Chillicothe, Ohio, and Perryville, Md.

Government hospitals operated by the bureau at the end of August, 1923, numbered 88. In these institutions there were being treated 16,668 veterans who were suffering from

physical or mental disabilities. In addition, some 6,300 veterans were receiving treatment in 560 private hospitals. Veterans of the Spanish-American War, the Boxer Rebellion, and the Philippine Insurrection, who are suffering from tubercular and nervous afflictions, are entitled to these hospital facilities, but nearly all of the patients suffered their disabilities in the World War. Since the end of that war Congress has been liberal in providing for hospital construction and equipment, appropriating altogether $47,245,000. Each institution represents the last word in modern equipment, comfort, and architecture.

Aside from the great annual appropriations for the Veterans' Bureau and its various activities—appropriations that exceed even those for the Army and Navy and the Interior Department with its pension rolls of wars preceding the World War—nothing could better illustrate the country-wide ramifications of this soldier-relief agency than the figures covering its correspondence, the number of its employees, the size of its central plant in Washington, and the number of its agencies situated in every State. For the expenses of the bureau, Congress appropriated for the fiscal year 1923 the sum of $431,298,000. For the fiscal year 1924 the appropriation was $428,160,000.

In Washington the bureau occupies an immense 11-story building a block and a half north of the White House. In this building on September 1, 1923, there were 4,544 employees, ranging from messengers to executive officers and physicians. This central office organization is small compared to that in the field, the bureau having on its pay roll in the field on September 1, 1923, more than 22,000 employees, who, in addition to the headquarters staff, minister to the needs of the Nation's veterans under guidance of Brig. Gen. Frank T. Hines, the Director. Of these 8,951 were stationed in hospitals. The bureau maintains a staff of about 2,600 physicians and 1,500 nurses. Approximately 1,800 physicians give their full time to the work.

The average amount of compensation paid annually is $125,000,000 and the total amount of compensation paid to September 1, 1923, was about $500,000,000. Compensation is graded to the degree of disability. The bureau rates disability in tables, such as 10 to 25 per cent disability; 26 to 50 per cent; 51 to 75 per cent; 76 to 99 per cent. There are also such terms as "100 per cent temporary total" and "100 per cent permanent total" and "200 per cent double permanent total."

When a veteran goes into rehabilitation training, he receives a maintenance allowance in lieu of the ordinary compensation. He can not draw two allowances at the same time. Generally a fully rehabilitated man loses compensation and training maintenance when he is able to take care of himself. However, there are classes that continue to draw compensation regardless of civil employment, including men who have lost one or both legs, one or both arms, one or both eyes.

The bureau's Washington building covers half a city block. Its inhabitants would overflow the average small town with its Main Street. So great is the traffic of its 8 main elevators that there are certain lifts that never take on downward bound passengers, while others never stop on an upward trip. Other elevators are local or express. The Arlington Hotel once stood on this site. Here, 20 or 30 years ago, diplomats, statesmen, great financiers, and presidential candidates used to stop. J. Pierpont Morgan, the elder, frequently was a guest of the Arlington. Now the Government disburses every year on this site a sum greater than all the cash and securities of the late Mr. Morgan.

XXXIV

THE SHIPPING BOARD

TWICE in the history of the United States its ships have multiplied until they swarmed the seas. The first period was at the behest of trade rivalry, the second at the call of war. It was said of Helen of Troy that hers was the face that launched a thousand ships. The same might be said of the face of the American Goddess of Liberty. When, in 1917, the call to arms came from the Presiding American Deity, her shipwright was the United States Shipping Board. Its brief history has been one of splendid achievement, although tinged with episodes of almost comic fiasco.

The first period of American shipping activity reached its zenith in 1860. The clipper ship, the fastest sailing ship the world ever has known, was designed by an American and the lofty clouds of canvas spread by this type of craft bore the American flag to every port in the seven seas. In 1800 American merchant tonnage was but 1,500,000; by 1860 it had reached 8,000,000. For seaworthiness and speed these ships never have been excelled under sail. The Yankee shipmasters used to lock the halyards to prevent timid sailors from shortening sail and, in quest of speed records, would let their sails be torn from the rigging before they would reef them in a stiff blow.

Then came the Civil War. The stone fleets sailed from New England. Tall clippers, loaded with stone, sailed down the coast and were scuttled in the mouths of southern harbors to blockade them. The great winged fleet was gone. It was not until after 1900, in spite of the progress of steam on the

ocean, that American merchant tonnage again reached the high point of 1860. Indeed, it was not until 1917, when the Shipping Board fleet began to come into existence, that the volume of foreign trade carried in American ships reached what it had been just prior to the Civil War.

The act which created the Shipping Board was not approved until September 7, 1916. At that time the United States was not in the war and it was not at all certain that she would become a belligerent. The act of Congress, at the time of passage, was not intended to result in setting the Government up as a shipbuilder, except in some contingency which then seemed remote. An appropriation of $50,000,000 was provided for this purpose, but it was not believed generally that the Government actually would go into the shipping business. The Shipping Board was created essentially to act as a body to regulate ocean freight rates, just as the Interstate Commerce Commission regulates rates of the railroads. Developments crowded so fast, however, that little of this function ever has been exercised.

The shipping situation which prevailed just before the United States entered the war was unparalleled in the history of the world. The war in Europe took 10,000,000 men from productive pursuits and set them at destruction. It was inevitable, therefore, that a great neutral country like the United States should be called upon to furnish supplies. Three thousand miles of sea intervened. Instantly there developed an unprecedented demand for shipping. As long as port captains, masters of craft, and shipping men of that period live they will spin yarns of the resurrection that took place in shipyards all over the world. Every port, every shipyard, has its adjacent graveyard of old hulks. Ships no longer deemed seaworthy, or regarded as too slow or cumbersome to be profitably employed, are normally laid up and permitted to rot away. When this pressing demand for overseas transport came, there were not enough ships in commission to go around. The German sea command was bend-

ing its efforts toward the destruction of merchant vessels. Losses were mounting every day, cutting down the all-too-small supply. The result was that cranky old hulks were resurrected from the graveyards and refitted. Anything that would, by good luck, float long enough to make one voyage across the ocean was laden with cargo and dispatched. What matter if she did sink from unseaworthiness? The chances were that she would be sunk by submarines anyway. So long as any old tub would float she was a gold mine. Time charter rates in 1914 had been $1 per ton. In 1917 they were $20 per ton. The prices of ships in 1914 ranged around $60 per ton; in 1917, $300 was the going rate. The freight collected on a single cargo would pay the cost of a ship. Even with the ghost ships, dragged out of the graveyards, plowing across the submarine infested seas, there were not enough cargo craft afloat.

Then came April 6, 1917, when the United States entered the war. Instantly the word came from the Allies that ships were required more than anything else. Daily their own vessels were falling prey to the submarines and meanwhile armies and civilian populations were running short of food and munitions.

The Government turned to the Shipping Board and evoked the provisions of the shipping act authorizing the construction and operation of ships. Every shipyard in the land was working day and night on ships for private builders of this and foreign countries. One of the first moves of the Shipping Board was to requisition or commandeer all of these vessels over 2,500 tons. It then began awarding new contracts so that six months after the United States had entered the war more than 1,000 ships were under contract or requisition. A year later this figure had risen to 2,400 ships. Congress immediately gave heed to the necessity for ships and poured money out of the Treasury coffers. A few months after the die had been cast the vast sum of $2,000,000,000 was made available for ships, shipyards, the purchase, and the expenses

of operation of ships. A year later this figure had increased to $3,000,000,000.

Ninety-one German ships which had interned in American ports, while the United States was neutral, were seized and reconditioned for service under the American flag. One of these was the famous *Kronprinzessen Cecile*, one of the finest of the German merchant marine. Before the declaration of war she had steamed out of New York Harbor bearing one of the most brilliant assemblages of passengers ever listed. Statesmen, diplomats, titled nobles, opera stars, millionaires, were aboard, and, in addition to other valuable cargo, a quantity of gold. Before she had gone far, she received wireless news of the declaration of war and, unknown to the passengers, during the night her captain turned her around and steered back for neutral America. The first hint of the change in course the passengers had was that, upon rising in the morning, they saw the sun coming up from the same side of the boat on which they had seen it descend. The great liner returned, not to New York, but to the fashionable seaside resort of Bar Harbor. To the amazement of the visitors, and especially of the native fishing population, one of the largest and fleetest greyhounds of the ocean steamed that morning into their harbor where only fishing craft and small cargo vessels ever had been seen before. Other German ships came back, some fleeing before allied destroyers; some, like the *Prinz Eitel Frederick*, which reached Norfolk, slinking in with loot and prisoners after having served Germany's turn as a raider in the South Atlantic. These interned ships were added to the American war-time merchant marine when war was declared by the United States. In all, 600,000 tons of interned shipping was seized.

Next came perhaps the most dramatic episode of the shipbuilding program. There were not sufficient shipyards to build ships fast enough to keep up with the submarine sinkings and the added needs. The Shipping Board organized the Emergency Fleet Corporation, in form similar to a private

corporation but with its capital stock owned by the Government. Some of the Nation's greatest industrial geniuses took jobs as officers of the corporation. Shipyards were built, the greatest being that at Hog Island.

Hog Island scarcely was an island at all; it was a stretch of swampy land on the Delaware River, just south of Philadelphia. Almost overnight it was converted into the world's greatest shipyard, which covered 846 acres, had 250 buildings, 80 miles of railway, 20 locomotives, 165 motor trucks, 3,000,000 feet of underground wiring, ways where 50 ships could be built simultaneously, and piers where 28 more could be fitted. Thirty thousand men were employed, a number approximately equal to the entire population of Joplin, Mo., or Newport, R. I., or as many adult workers as there are in Oklahoma City. There was a water frontage of 20,000 feet and the 50 ship ways extended for 1¼ miles along the Delaware River. At a little distance, the mass of steel uprights looked like a dense forest of tall trees.

The output of the Shipping Board's other lesser shipyards, together with the requisitioned and purchased tonnage, proved sufficient to enable the Allies to win the war before this great Hog Island yard got fully into production, for the yard had to be built on bare, swampy land before actual shipbuilding could be begun. The first keel was laid down on February 12, 1918, and the first ship was launched on August 5 of that same year. She was the *Quistconck* of 7,500 tons. Her name was chosen and she was christened by Mrs. Woodrow Wilson. She named all the Hog Island ships and for all she chose Indian names.

Another series of ships were named after lakes, such as the *Lake Erie*, the *Lake Granger*, and the *Lake George*. Many of these were constructed at yards on the Great Lakes. It was found that some of the Great Lakes' ships were too large to be brought down to sea through the Welland Canal which connects the Lakes with the St. Lawrence River. The fantastic feat of cutting the ships in two and floating them down

in sections was performed. Once through the winding channels of the canal and the river they were put together again.

Meantime, the Shipping Board was placing contracts wherever ships could be built. Even yards in China and Japan were given contracts to build vessels for the American flag. One of the great triumphs of American industrial efficiency was the manner in which the Hog Island ships, as well as those of some of the other yards, were constructed. Usually a shipyard is a self-contained unit, producing an entire ship on the spot. This was not possible in the mushroom yards required by the exigencies of war. The fabricated ship was the result. Steel mills, boiler works, machine shops all over the country, were given blueprints and specifications for producing separate parts of ships. One mill would make only strakes of a certain shape; another would produce plates. All were made in accordance with certain standard designs. As completed, these were shipped, carefully marked, to the central shipyards and there these parts, which came from the ends of the country, were fabricated or fastened together as a child puts together a mechanical puzzle. In this way the greatest possible speed of construction was achieved.

The labor situation became acute. Mechanics were in great demand, as were all able-bodied men. Extremely high wages were paid. Contests were held between the riveters of various yards, and work was paid for by the number of rivets driven in a given number of hours. The story is told of a negro who, before the war, had worked at various odd jobs and scarcely earning a livelihood, made $70 a day at an Alexandria, Va., shipyard. Similar records were made at Hog Island.

The great fiasco of the Shipping Board's history is the story of the wooden ships. The idea was conceived that a vast fleet of wooden ships could be built with more speed than was possible with ships of steel. More than 1,000 such ships were ordered and shipyards for their construction sprang up every-

where. Tales which would be ludicrous, were not such an appalling loss of money involved, are told of this wooden-ship program. In the haste of construction, men unskilled in this kind of work were not only employed on the job, but, in some cases, were placed in charge. They appeared ignorant or careless of such facts as that absolutely dry timber must be used for a ship. Many ships were built of green timber. At one yard three ships were built. When the first was launched it slipped down the ways to the water and kept right on going—down to the bottom. It never floated a minute because the green timber had opened great seams which let in the water. The second was launched and sank ignominiously after floating for three days. The third kept afloat long enough to be fitted and then went down after the others.

The error was discovered after nearly 600 of these wooden ships had been built or partially constructed. They cost $300,000,000. After the war there were only 226 ships that could be disposed of at any price and these were sold for junk for $750,000. The purchaser removed machinery and what brass, copper, and other metal he could salvage, and then towed the ships to sea and burned them. The very name of "wooden ship" still brings a shudder to Shipping Board officials. Somewhat similar was the experience with concrete vessels. These were an innovation. Forty-two such vessels were ordered, but the construction was stopped after a dozen had been completed.

When the armistice came, the Shipping Board yards still were busy with ships under construction and private yards with ships under contract. Launchings were constantly being made. The need for transport of war supplies was at an end, but an era of unprecedented trade activity set in to meet Europe's reconstruction needs. The Shipping Board became a great operating company with vessels in every trade. Ports which never had seen the American flag before now beheld the Stars and Stripes at strange mastheads in their harbors. The board had maintained schools for the training

of officers, and crews and ships were sent forth on all seas, carrying American goods abroad and bringing foreign goods home. Largely because of the existence of this great Government-owned merchant marine, the foreign trade of 1919 and 1920 reached the unprecedented total of $8,000,000,000.

A world-wide business depression ensued and the ships became idle. The board had vessels tied up in nearly every American port. It was concluded to liquidate this vast fleet by selling it to private ship operators. Many of the best vessels found ready purchasers and now are plying the steamship lanes of the world under private ownership. The board's policy is to dispose of others as rapidly as purchasers can be found, but with so great a fleet considerable time will be required to find buyers. Meantime, the board continues to control a fleet numbering about 1,334 ships, valued approximately at $225,000,000. The total investment of the American people in the Shipping Board program has amounted to $3,500,000,000. Its greatest ship, the *Leviathan*, was formerly the German liner, *Vaterland*. After she had been seized, she was fitted out as a troop transport for carrying American soldiers to Europe and bringing them back. When this task was completed, she was reconditioned as a liner. On this work the Shipping Board expended nearly $10,000,000, making her the finest vessel afloat. She entered the trans-Atlantic trade in the summer of 1923, after a trial trip in which she broke the world's speed record by steaming 28.04 knots per hour. On her maiden voyage to Europe, she carried a distinguished company. Among them was a man who had come to the United States, years ago, as an immigrant boy, practically penniless but with the hope of making his fortune in the New World. He returned to the old country in the premier suite of the *Leviathan*, his passage costing an amount which on his arrival here he would have regarded as a great fortune. That immigrant boy was James J. Davis, now a member of the President's Cabinet.

XXXV

THE ALIEN PROPERTY CUSTODIAN

Soon after this country entered the World War Congress created the office of the Alien Property Custodian as a part of governmental machinery. Its operations began six months after the United States went to war, and, within a few weeks, property valued at $600,000,000 had been seized. The office of the Alien Property Custodian has administered as a trustee most of this great property valuation. The office, in fact, is nothing more nor less than a gigantic trust company with national and international ramifications. It is one of the harsh practices of war that when hostilities are declared between two nations each belligerent seizes the property of enemy aliens located within its boundaries. Therefore, American properties in Germany were seized just as America took possession here of the property belonging to interned and enemy Germans and Austrians. The seizures in this country were made under what was known as the trading with the enemy act.

At the peak of its activity the office of Alien Property Custodian was administering more than 30,000 active trusts in this country as the war-time and after-war agency of enemy aliens. The property seized, administered, or sold, ranged from valuable chemical patents, such as Salvarsan, to the Boesch magneto, or a silk mill, or a German bank in America. A few illustrations of the trust powers of the Alien Property Custodian will show the wide powers conferred and exercised by act of Congress.

The third of the line of three Alien Property Custodians, Col. Thomas W. Miller, is administering as trustee the Botany

Worsted Mills, of Passaic, N. J., which employs approximately 7,000 workers. After war was declared these mills were found to belong to the Stoehr interests in Germany, and since the owners were enemy aliens the property was seized by this Government.

The Custodian has had control of several sugar plantations in Hawaii that originally belonged to Germans. In the Philippines he has been the boss of tobacco plantations. Also in Hawaii, it appears, there was at the time the war broke out a valuable collection of postage stamps, gathered from all over the world. This stamp collection, belonging to a resident of Germany, is reputed to be worth $90,000, and the Custodian promptly took possession of it. In San Francisco the Custodian is guarding a collection of paintings, worth nearly a quarter of a million dollars, which belonged to Hungarian artists who came over to offer exhibits at the Panama-Pacific Exposition and remained to paint in America. In Alaska the Custodian became a temporary dealer in the packing of salmon and other fish. This was because enemy aliens were found to hold fisheries interests in Alaska as the war came. Several of the once prosperous German companies have since gone defunct because of the depression in the fishing industry.

Probably the most interesting trust of all was that of the property of Grover Cleveland Bergdoll, most notorious of all American draft dodgers in the World War. This seized property represents a value of nearly three-quarters of a million dollars. After Bergdoll had been imprisoned as a draft evader he persuaded the War Department to permit him under guard to go to the Maryland mountains where he claimed to have buried $150,000 in gold. While in search of this alleged gold cache, Bergdoll escaped from his military guard, fled to Canada, and thence proceeded to Germany. The United States unsuccessfully sought his extradition to serve his sentence in this country. However, the scope of the Custodian's office is shown not only by the fact that it

seized all of Bergdoll's property, but also in that the Custodian made more than one attempt to spade up the Bergdoll gold said to have been buried in the Cumberland mountains.

A former Alien Property Custodian disposed of approximately 5,000 German patents, trade-marks, and copyrights to the Chemical Foundation for approximately $250,000. This sale was subsequently attacked and litigation was begun in 1923 to invalidate the sale. Another important sale of German property was that of the Bayer Company, controlling the production of a headache remedy, known as Bayer's Aspirin Tablets. This patent was sold for approximately $5,500,000. It was claimed that the Bayer Company in this country, operated by German interests and capital, had been making almost unbelievable profits on a small capitalization, and that by substitutes there had been wholesale violations of American taxation laws. The Alien Property Custodian says that this violation was so extensive that the American purchasers of this Bayer patent had to pay more than $1,000,000 in back taxes.

In defining the trading with the enemy act and presidential proclamations thereunder, the word enemy covered any person, corporation, partnership, or association resident in enemy territory, or territory occupied by the enemy, and all persons interned by the United States or its allies. Money or property, however, of enemy nationals residing in the United States was not subject to seizure unless the owners were interned. If such owners were released from internment, their property was released.

In order that the Custodian should be fully advised as to money or property in the United States subject to seizure, the trading with the enemy act required that all persons having custody of such property should report the same to the Custodian who, in his discretion, issued demands, took title to the money or other property, and then proceeded with the administration thereof, having the powers of a common law trustee.

Under these demands or by a voluntary surrender, almost every conceivable kind of property came into the possession of the Custodian. He seized moneys, bank accounts, stocks, bonds, notes, mortgages, real estate, wharves and docks, interests in partnerships, trust funds and incomes therefrom, vested, contingent, and remainder interests in estates, patents, copyrights, and trade-marks, credits, actions-at-law and in equity, contracts, and obligations. By virtue of his stockholdings in American corporations secured by his demands, he became in many instances majority or sole stockholder, charged with the responsibility of selecting directors and supervising the conduct of woolen mills, steamship lines, shipyards, banks, mines, chemical companies, lumber mills, real estate corporations, as well as other miscellaneous industrial plants located in every part of the United States and its possessions. The moneys received by the Custodian were deposited with the Treasurer of the United States and the Treasurer was given authority to invest such moneys in his discretion in securities of the United States.

All alien property is held under a trust designated by the name of the individual or concern whose property it was prior to the seizure. Wherever it has been necessary, whether for the conservation of the property, or to prevent waste, or for reasons of public policy, property has been sold and the proceeds deposited with the Secretary of the Treasury to the credit of that trust. The income collected from property still held is deposited to the credit of the trust, none of these funds being used for the maintenance or expenses of the Alien Property Custodian Office which are provided for in annual appropriations by Congress. These cover primarily the salaries of the Custodian, his legal assistants, and several hundred clerks in the Washington office. The larger expenses incident to the operation, sale, and trusteeship of the important properties seized were paid from the corporate funds of the concerns involved.

The Knox-Porter Resolution declaring a state of peace

with Germany states that the property of German nationals in the hands of the Custodian should be held until Germany made suitable provision for the satisfaction of claims of American citizens against the German Government arising out of the World War. The provisions of this resolution were made part of the treaty of Berlin with Germany. Similar provisions are found in the resolutions and treaties referring to Austria and Hungary.

There are several classes of these American claims, such as those of Americans whose cash was seized by the German custodian and who were later offered the return of their cash at the depreciated value of the mark, which if accepted, amounted practically to confiscation, and various claims on file with the State Department for the loss of property and life at sea growing out of submarine sinkings previous to April 6, 1917, such as that of the *Lusitania*. The total amount of these claims up to March, 1921, was $415,000,000. Of this amount approximately $190,000,000 were tort claims for loss of life, and statistics show that in past conflicts between nations final settlement was concluded for this class of claims for only about 2 per cent of the original claims. Since March, 1921, the Mixed Claims Commission has been created for the adjudication of the claims against Germany, the compilation showing over a billion of dollars divided among some 12,000 claims, which amount will be considerably reduced when finally adjusted.

The four hundred millions of alien property could not be used to satisfy these claims without resorting to confiscation of private property, but section 5 of the peace resolution affords sufficient authorization for this Government to hold this property until suitable provision has been made for the satisfaction of all claims against Germany. Should the United States elect to do this, it will be necessary to work out some system to carry out the plan. It is a well-known fact that the large business interests of Germany whose property was held were satisfied that it remain in this coun-

try. On the other hand, it has been contended, the poorer classes in Germany whose property has been sequestered should have it withheld from them no longer than it is necessary to arrange for a proper return.

Congress made its first bite at the international cherry of property adjustments when it authorized the Alien Property Custodian to settle and pay alien property claims up to the amount of $10,000 each. This legislation, however, dealt with only the smaller properties seized during the war and did not cover the more valuable patents and chemicals taken from enemy aliens. This Government felt that it should first satisfy the smaller claimants, the question being the determination of the property dead line. Trusts of $10,000 or under were finally selected for early adjudication.

Under the original law no property in the United States, which was vested in a citizen of Germany, Austria, or Hungary, could be returned without the specific direction of Congress. Amendments first passed covered the return of property to citizens of Czechoslovakia, Yugoslavia, and Poland, the States formed out of the Austro-Hungarian Empire, and to citizens of Serbia and Rumania who formerly lived within the confines of the Austro-Hungarian Empire.

XXXVI

THE PANAMA CANAL

As a commercial investment, as an investment in national defense, and as an investment in national prestige, the Panama Canal is a success fully commensurate with its magnitude as an engineering project. The amount of money expended in its construction was a little more than $385,000,000, and of this about $110,000,000 is chargeable to the national defense, leaving approximately $275,000,000 invested for commercial purposes. This latter sum, however, includes $28,000,000 spent in auxiliary business enterprises.

Up to and including the year 1922 the largest amount collected for tolls in any one month was $1,312,570.12 for December, 1922. The total collection for tolls during 1922 was $11,477,312.91, when 2,736 vessels registering 10,844,910 tons transited the Canal. During the year 1923 the number of ships passing through the Canal showed a large increase with corresponding increase in the amount of tolls collected. The largest business for any one month in the history of the Canal was for the month of July, 1923, when the tolls collected aggregated $2,124,410.32. During this month 474 vessels passed through the Canal. At this rate the receipts from tolls would aggregate approximately $25,500,000 per year, or a return of nearly 10 per cent on the invested commercial capital of $275,000,000.

Vessels in the direct service of the United States Government, including merchant vessels chartered by the Government, do not pay tolls, but vessels of the United States Shipping Board in commercial service are charged regular

tolls. Ships owned and operated by the Government of Panama and by the Government of Colombia do not pay tolls. The Canal is capable of handling the largest of the modern vessels and about 48 ships of average size can be passed through in a day or at the rate of approximately 17,000 in a year. An average of 15.29 transits is the daily record of the Canal at the latest computation, with daily receipts of more than $68,000.

The journey of the U. S. S. *Oregon* in 1898 around Cape Horn from the Pacific Ocean to the theater of the War with Spain in the Caribbean Sea was one of the most forceful illustrations of the necessity of a waterway connecting the Atlantic and Pacific Oceans across the Isthmus of Panama. It had perhaps more direct bearing upon the determination of the Government to construct the Canal than any other single factor. Had the Panama Canal been in operation at that time the famous trip of the *Oregon* would have been shortened by 8,000 miles.

The Panama Canal shortens the water route from New York to San Francisco by 7,875 miles; from Liverpool to San Francisco, by 5,666 miles; from San Francisco to Pernambuco, by 3,002 miles; from New York to Callao, by 6,250 miles; from New York to Yokohama, by 3,357 miles; from New York to Sidney, by 3,615 miles. On the occasion of the maneuvers of the Atlantic Fleet in the Pacific Ocean, 32 naval vessels of all types, including the largest battleships, passed through the Canal without mishap in two days.

The completed Canal is an outpost, with the most thorough and up-to-date equipment for the assistance and supply to ships in a section of the world otherwise not well equipped for the maintenance of modern vessels. There are pastures covering 50,000 acres for cattle; a modern slaughterhouse; cold-storage plant, and an ice plant. A supply of fresh beef is always obtainable at a price which compares favorably with that at any port in the world. The repair facilities for ships include one of the largest dry docks in the world, 1,000 feet

long by 110 feet wide, with a depth over keel blocks at high tide of 43 feet. There is also a 300-foot dock for smaller vessels. Foundries and shops are operated in connection with the dry docks; and floating cranes, tugboats, and a salvage steamer are part of the equipment. Needed supplies of foodstuffs can be readily purchased in the stores maintained in the Zone.

Coaling plants of 700,000 tons capacity are capable of loading ships at the rate of from 100 to 500 tons an hour, or as fast as the ships can store the coal in their bunkers. Oil tanks operated by the Canal and oil companies have storage capacity for 1,500,000 barrels of oil, insuring oil-burning vessels, of which the number is steadily increasing, an adequate supply of fuel at all times. Pure water can be obtained in unlimited quantities.

The Canal connects the Atlantic and Pacific Oceans across the Isthmus of Panama where the long Continental Divide, extending from Alaska to Magellan, dips to one of its lowest points. In ancient times there was a natural channel across the Isthmus, but with the passing of the centuries the land gradually rose until the channel was entirely closed, hills and valleys being formed, making the Isthmus a great barrier between the oceans.

The greatest elevation through which excavation for the Canal had to be made was 312 feet above the level of the sea in what is known as Gaillard (Culebra) Cut. The successful completion of this cut might well be termed the backbone of canal construction. It was a much more difficult task than simply cutting away or cutting through part of a mountain. The nature of the soil is such that landslides were of frequent occurrence. Steam shovels used in the work were buried by the slides on many occasions. The railroad tracks of the transportation system constructed for the trains of dump cars used in carrying away this vast amount of earth were time and again covered by the slides and the line of railway completely disarranged. The channel of the Canal is 42

miles in length between shore lines and 50 miles long between deep water in the Atlantic and deep water in the Pacific Oceans.

Cutting a waterway across the Isthmus of Panama was in contemplation for centuries before any actual work was started. Christopher Columbus visited the shores of Panama in 1502, and before his death tentative plans were made for digging a channel across the Isthmus. From that time the connecting of the oceans was an international dream that remained eventually for the Government of the United States to realize. Spanish, French, British, and American engineers made many surveys and developed various projects for an Isthmian waterway. A French company with private capital was finally organized and started the first active work toward building a canal in January, 1880. It expended about $300,000,000 in the enterprise and excavated nearly 30,000,000 cubic yards of earth before operations ceased in 1889, when the company failed. A reorganized company resumed operations in 1894 and continued work more or less actively until its rights and property were purchased by the United States under authority of the act of Congress of June 28, 1902.

The American occupation of the Canal Zone began on May 4, 1904. Eleven years later the Canal was opened, the first ocean steamer passing through on August 3, 1914. Twelve days later, on August 15, the Canal was opened to the commerce of the world.

Under the treaty with the Republic of Panama the United States exercises exclusive jurisdiction over a strip of land 10 miles wide following the course of the Canal. This territory is officially named the Canal Zone. The organization for the maintenance and operation of the Canal and the government of the Canal Zone as at present constituted was established by the President in conformity with the provisions of the Panama Canal Act of August 24, 1912, authority being vested in a Governor who is the head of the Canal Zone Government and of the organization of the Panama Canal.

The amount of excavation by the United States Government in the completion of the Canal was approximately 260,000,000 cubic yards. When Uncle Sam took hold of the work of building the Canal at Panama, it was estimated that it would require nine years to remove about 105,000,000 cubic yards of earth. Owing to the great efficiency with which the work was prosecuted, more than two and a half times this amount of excavation was accomplished in a period of 10 years.

Before definite plans for building the Canal were completed, it was long undecided whether a sea-level or a lock canal should be built. The decision, however, was in favor of a lock canal. The line of the Canal goes up the valley of the Chagres River on the Atlantic slope, passes through the ridge of the Continental Divide, and descends to the Pacific Ocean down the valley of the Rio Grande. The middle section is 34 miles long and has a water level 85 feet higher than the sections from Gatun and Miraflores to the sea. By building a great dam across the valley of the Chagres, Gatun Lake, the largest artificially constructed lake in the world, was formed. This lake has an area of 163.38 square miles and its surface, 85 feet above sea level, is the middle section of the Canal.

Gatun Dam is over a mile and a half long, a half mile wide at the bottom, 400 feet wide at the water line, and a hundred feet wide at the top. The surface of the dam has been planted with grass and shrubbery, and the east wing is the site of a nine-hole golf course. The top of the dam is over a hundred feet above sea level and 20 feet higher than the surface of the water in the lake.

The passage between the Atlantic Ocean and Gatun Lake is made by three steps of locks, while on the Pacific side the passage between the Gatun Lake level and the Pacific is made by the Pedro Miguel Lock, Miraflores Lake, and Miraflores Locks. Gatun Locks, including the approach walls, are one and one-fifth miles long, Pedro Miguel Lock

five-sixths of a mile, and Miraflores Locks slightly over a mile in length. The individual locks or chambers in each flight of locks are 1,000 feet in length, with a width of 110 feet and a depth of about 70 feet.

The locks are constructed like a double-track railway, so that one ship may go up while another is going down, thus allowing ships to go through the canal in opposite directions at the same time. At each step a ship is lifted up or down about 28 feet. The two side-by-side locks, including the outside walls, are approximately 380 feet wide and are separated by an inside wall or partition 60 feet thick.

The successful completion of the Panama Canal was a signal triumph for the engineering ability of those in charge of that branch of the work under the leadership of Gen. George W. Goethals. There was, however, another problem equally as important and vital to the success of the undertaking which had to be solved—not a problem of removing a hill of earth with steam shovels and dump cars, but that of sanitation—the stamping out of dreaded yellow fever and malaria so that men could live to work. Lack of proper attention to the matter of sanitation was one of the principal reasons for the failure of the first French company. It has been said that so great was the mortality among the laborers during the first French régime that they drew their day's wages at the end of every day and spent them during the night for fear they would not live through the next day.

The destruction of the yellow-fever mosquito, of which there were countless swarms, and the cleaning up of the breeding places, consisting of every little pool of water, was the first step in making the Isthmus a safe place in which to live. The unprecedented success of the sanitary campaign under the leadership of Gen. W. C. Gorgas is a lasting memorial to his fame as a sanitary officer. The Canal Zone on the Isthmus of Panama is to-day the most healthful strip of land in the Tropics.

XXXVII

PROHIBITION

NATION-WIDE prohibition became effective in the United States January 16, 1920, as a result of the adoption of the eighteenth amendment to the Federal Constitution and the passage of an enforcement act known as the Volstead Law. This law was passed twice by Congress, the second time on October 28, 1919, by a two-thirds vote of both House and Senate in order to override the veto of President Woodrow Wilson.

Agitation against the use of intoxicating liquors is coeval with written history. The early Mosaic lawgivers attempted to repress drunkenness. Over 2,000 years B. C. a King of Babylon, Hammurabi, decreed that a wine seller who permitted riotous persons to assemble on his premises should be put to death, and Mohammed commanded his followers to abstain from the use of intoxicants.

In the United States the first laws to prohibit the manufacture and sale of liquors date back to 1838 in Tennessee and to 1846 in Maine. Prior to 1906, 18 States had adopted State-wide prohibition, but the temperance wave had receded by that year so that but three States—Maine, Kansas, and North Dakota—remained in the prohibition column. Campaigns for State laws and constitutional provisions were renewed and the movement progressed rapidly from the enactment of the Georgia law in 1907. Ten years later, when the so-called Reed Amendment went into effect, there were 23 "bone-dry" States. This law was directed against the

shipment of liquors into the dry States. The entrance of the United States into the World War materially strengthened the prohibition forces. First the sale of liquors to soldiers and sailors was forbidden. Next, under the food control act, the President was authorized to prohibit the use of grains and fruits in the distillation of liquors for beverage purposes. Then followed the passage on November 21, 1918, of the war-time prohibition act, prohibiting after June 30, 1919, the sale, during the European War and thereafter until the termination of demobilization, of any intoxicating liquors except for export.

Meanwhile a resolution for a constitutional amendment had been passed by both Houses of Congress and the fight was transferred to the States to secure the necessary ratification by the legislatures of three-fourths thereof. This was accomplished by January 16, 1919, and the eighteenth amendment became effective one year later. The twelve months' interregnum was provided for in the amendment as a period of adjustment to the new order of things.

The immediate effect of prohibition was a loss to the Federal Government of more than $400,000,000 in annual revenue from the taxes on the liquor industry, and an increase in its expenditures necessitated by the administration of the enforcement act, the appropriation for this purpose for a year being in excess of $9,000,000. States and municipalities that had licensed the traffic also suffered a corresponding loss in revenues.

A result almost coincident with the taking effect of the law was the development of a new industry, or business, known as bootlegging, which speedily attained mammoth proportions. Bootlegging is the illegal traffic in intoxicants. The supplies are obtained through illegal manufacture within the United States, through theft or illegal withdrawals from bonded warehouses, or through smuggling from adjacent countries or near-by islands. Tens of thousands of people have engaged in these unlawful enterprises and the capital em-

ployed has aggregated many millions. The risks are great, the prices high, and the profits correspondingly large. Fortunes have been amassed within a comparatively short time.

Piracy and hi-jacking have developed as collateral activities of bootlegging and smuggling. Lawless individuals or groups have preyed upon others of their kind, stealing the illicit liquor supplies in storage or in transit, or the cash that was to be paid for such supplies. Desperate fights and many murders have featured the operations of these criminals. Most of the crimes go unreported and the perpetrators unpunished because the victims are themselves lawbreakers and can not appeal to the authorities or to the law.

Another concomitant evil of bootlegging has been the corruption of officials charged with the enforcing of the law. Wherever the illicit traffic on a large scale has been discovered, bribery or attempted bribery has been disclosed; and it has also been found that officers of the law have not always waited to be corrupted but have levied tribute. Immense sums in the aggregate have thus been paid for protection.

Obviously there would be no bootleggers if there were no market for their wares. The volume of their business is therefore indicative of the widespread disregard of the law on the part of the American people. Careful investigators have reported that there is scarcely a community in the United States that is entirely free of the liquor traffic, and in the larger cities the evasions and violations of the law are constant rather than sporadic. Consumption of illegal liquor is by no means confined to what is ordinarily known as the lawless element of the population. Men and women who are otherwise wholly respectable and respected are regular customers of the bootleggers. One of the traffickers arrested in Washington had in his possession a book containing the names of persons with whom he dealt that read as if someone had been compiling a list of a few hundred of the "best people" in the National Capital. Legislators who voted for

the prohibition law have been charged with infractions of its provisions.

The Attorney General of the United States has reported that his department has been called upon to prosecute a member of the judiciary, prominent members of the American bar, multimillionaires, and scions of the Nation's aristocracy, and that it was all a sordid story of assassination, bribery, and corruption that found its way into the very sanctums wherein the inviolability of the law was presumed to have been held sacred.

Representative William D. Upshaw, of Georgia, one of the spokesmen of the Anti-Saloon League, created a furore in the Sixty-seventh Congress, with charges that there was a great deal of drinking "in high places." He proposed that all public officials of the country, State as well as national, pledge themselves to total abstinence and respect for the eighteenth amendment and the enforcement law. It is significant, also, that conferences of the governors of the various States have been called, first by the late President Harding and then by President Coolidge, to consider ways and means of enforcing the prohibition act and of creating a public sentiment for law observance.

The Prohibition Unit of the Bureau of Internal Revenue, which is charged with enforcing prohibition so far as the Federal Government is concerned, is an organization headed by a commissioner established in Washington, with State and regional directors, State agents, and flying squadrons stationed throughout the country. This force numbers from 3,000 to 3,500 and has included more than 3,900.

The stories of prohibition enforcement are more absorbing than detective tales. The agents of the Government spend their time in a ceaseless contest to outwit and apprehend the illicit distillers, smugglers, and bootleggers who resort to every subterfuge to escape detection and interference with their highly remunerative business. One still operated successfully for months in a house adjacent to a police

station. The moonshiners had cut through the wall and effected a connection so that the smoke and fumes of the still escaped up the chimney of the station house. A southern manufacturer of corn liquor marketed his product by delivering it to city retailers in milk cans.

Smuggling from Mexico and Canada has been successful on a large scale because it is an utter impossibility to patrol the thousands of miles of border. The liquor brought across the line at the North or at the South finds its way hundreds of miles into the interior of the United States, instances having been found of bootleggers that maintained large fleets of trucks and automobiles running on regular schedules between Mexican and Canadian points and cities such as St. Louis, Kansas City, and Denver.

On the Atlantic Coast the smugglers are so numerous and so active that there is at all times what is known as a rum fleet standing off or anchored outside the 3-mile limit near New York and New Jersey. The fleet consists of vessels of all kinds and sizes that bring their illicit cargoes from the Bermudas or the West Indies, or even from across the Atlantic. As long as they remain outside the 3-mile limit this Government can not interfere with them and they are able to make their deliveries to bootleggers that slip out to them under cover of darkness in motor speed boats. The latter are frequently run down and captured by the prohibition enforcement officials, but enough of them slip through to maintain a constant supply of intoxicants on the market in the larger cities.

At one time the Prohibition Unit sought the cooperation of the Navy in its efforts to curb the business done by the rum fleet, but Attorney General Daugherty ruled that under the Constitution neither the Navy nor the Army could be used for such enforcement work. The State Department also made diplomatic representations to European nations seeking an extension of the 3-mile territorial waters limit to a 12-mile limit so that the United States might be better able to

enforce its prohibition laws by search or seizure of rum vessels farther out at sea. However, there was no immediate assent to this proposal.

Not all the ships engaged in liquor smuggling make their sales outside the 3-mile limit. Some of them have boldly entered harbors and unloaded their cargoes almost under the eyes of the officials who were detailed to put an end to such practices. A tramp steamer put into one of the Atlantic seaboard ports. Its decks were covered with watermelons. Merchants at the docks offered to buy the melons, but for two days the captain of the vessel asked an excessive price for them. On the third day he sold them for a fraction of the price originally asked. Then it was learned that at night the skipper had unloaded his real cargo, which consisted of several hundred cases of imported liquors and wines.

Prohibition enforcement agents have found that even coffins are used for the illegal transportation of booze. On more than one occasion make-believe funerals have been halted and the hearse and casket found to be conveying liquor instead of a corpse. Stills have been captured only after electrically charged wires surrounding an illicit distiller's place of business were cut. Bootleggers' automobiles have been equipped with apparatus that discharges a screen of dense, black smoke, or poisonous gas fumes to enable the drivers to elude pursuit. Trunks with false bottoms have been used for the transportation of whisky, and barrels of merchandise labeled fish, or sirup, or paint, have been seized and found to contain alcohol. One large branch of the bootlegging business is the supplying of alcohol to consumers who make synthetic gin, which is a much simpler process than distilling moonshine whisky. Alcohol is also used in the manufacture of synthetic whisky, which is not so popular with consumers, and in "cutting" imported whisky—making 2 or 3 quarts of what is labeled and sold for whisky out of 1 quart of the genuine article. This adds greatly to the profits of the bootleggers. It also tends to shorten the lives of their

consumers, but that does not seem greatly to concern the dealers as they always have more customers than they are able to supply.

Foreign diplomats stationed in Washington enjoy an immunity which enables them to bring into the country all the wines and liquors they require for consumption at their embassies or legations. It has been charged that some of this diplomatic liquor has frequently found its way into the bootlegging market. One woman, who was arrested on a charge of illegal possession and selling of contraband whisky, said that she secured her supplies from such a source. This woman, who had every appearance of respectability, resided in a fashionable apartment house and maintained enviable social connections. She admitted her illicit business and said that she was supporting herself and sending her son to college on its profits.

Another story has it that in a Washington residence that houses a certain diplomatic group there is maintained a regular bar, complete even to the brass foot rail so familiar in the saloons of former years. This latter feature is said to have an especial appeal to drinkers of the old school who can not crook the elbow without instinctively bending the knee and seeking to rest the foot on the old brass rail.

The Attorney General of the United States, in reviewing the work of the Federal courts in connection with cases arising out of 41 months of prohibition enforcement, reported that more than 90,000 cases had been terminated, that there had been 72,489 convictions, and that fines aggregating more than $12,367,000 had been assessed in criminal cases alone. For the fiscal year ending June 30, 1923, the Prohibition Enforcement Commissioner reported that his general agents had seized more than 5,000 illicit stills and that illicit distilling was on the decrease. The general agents, numbering less than 300 and not including hundreds of other national and State enforcement officers, were reported also to have seized 50,000 gallons of whisky, more than 2,000,000

gallons of mash, 9,000 gallons of pomace, 5,000 pounds of sugar, 21,481 fermenters, and other apparatus. The Commissioner further reported that in this fiscal year his general agents had seized 859 automobiles, 57 motor boats and launches, 29 horses and mules, and 15 wagons, buggies, and sleighs, and that taxes and penalties recommended for assessment totaled $24,177,000.

In review of two years of his administration the Commissioner said in 1923 that the facts presented warranted a fair degree of satisfaction with accomplishments as a whole. Many problems, he said, had been solved; but new problems presented themselves every day in different aspects of the work and would continue to do so for years. The Commissioner frankly stated that one of the chief difficulties presented might be termed sectional, where there was adverse public opinion to be combated. This, he added, was to be found chiefly on the Eastern seaboard, although there were certain interior cities where conditions made enforcement difficult. In certain localities, he reported, there had been cooperation offered by local authorities, in others such cooperation was lacking.

The Prohibition Commissioner not only controls by permit all withdrawals from bonded warehouses of liquor for medicinal purposes, but he also controls the issuance of prescriptions for liquor by physicians. Earlier forms of these permits were counterfeited and much liquor was illegally drawn. Later it was claimed there had been devised a new form of permits, almost impossible to counterfeit, and under the new system illegal withdrawals were much reduced. During the first quarter of 1923, official reports indicated there were only 302 overdrafts out of a total of 145,000 withdrawals. In 1920 whisky withdrawals aggregated 12,389,529 gallons. In 1921, when new methods were employed for checking up, withdrawals dropped to 3,243,845 gallons and during the calendar year 1922 withdrawals of medicinal whisky aggregated only 1,819,888 gallons. Concentration

of all whiskies in bond in a limited number of warehouses during this period also curtailed distillery robberies and made it more difficult for bootleggers to get liquor out of warehouses by forged permits.

The late President Harding said shortly before his death that it would probably require 15 to 20 years to make prohibition fully effective. Officials of the Anti-Saloon League and the Prohibition Unit are more optimistic, but it is generally conceded that legislation so suddenly changing the social habits of a people can not be put immediately into effect.

In combating rum running, bootlegging, and illegal transportation and possession in the earlier years of prohibition, Federal agents staged raids that revealed both the widespread extent of Volstead Law violations as well as the determination of the Government to suppress such violations. For instance, in one great city, during the clean-up drive, prohibition agents arrested 850 persons and raided 400 saloons and soft-drink parlors in one night.

While admitting the difficulty of cleaning up such wet spots in the larger cities where prohibition is less popular than in the rural communities generally, prohibitionists claim that eventually the situation will be met. It is claimed in behalf of prohibition that prohibition enforced is a success, and that prohibition even partially enforced is better than the legalized liquor traffic. It is contended by such prohibition advocates that arrests for drunkenness throughout the United States have been cut in half since prohibition; that the family man has largely dropped out of the drinkers' ranks; that there has been a great decrease in sex disease; that savings-bank deposits have increased even in periods of industrial depression; that the prison population has been materially reduced; that the workingmen who formerly spent their Saturday nights in corner saloons now take their pay envelopes home and spend their money on their families.

Its opponents say that prohibition can never be effective

in America. They point out that it has been an issue in the United States for a hundred years; that Maine has been legally dry for more than 75 years and yet prohibition was an issue in a recent election. Prohibition was a failure in China, they say, before the Christian era, and no law made to regulate the habits of a people has since been a success. They assert that in Denver, nearly 2,000 miles from the Atlantic seaboard, 170 persons died of acute alcoholism in 1922 as compared with 5 deaths in 1915, and there were 5,315 arrests for drunkenness in 1922 as compared with 4,384 in 1915. In Washington, the National Capital, they point out that the number of arrests for drunkenness increased from 3,491 in the year 1920 to 6,375 in 1922. The antiprohibitionists assert that prohibition was the result of the hysteria of war time, that it came without a popular vote of the people on the direct issue involved, and that it was abortive of the principle of local self-government because it was imposed on a number of States where the sentiment was undeniably against it. Proponents of prohibition reply that prohibition sentiment has steadily gained ground for more than 30 years, that three-fourths of the States had gone dry, and that national prohibition was inevitable and the Federal Government had the duty and the power to take the short route, abolish the saloon, and impose prohibition on all States for the general good of the Nation. Such social and moral reforms, they contend, are within the constitutional provinces of the parent Government.

Thus the debate proceeds over the wisdom and effectiveness of national prohibition. The existence of such extremely divergent views probably will keep the issue alive for years to come and reflects the somewhat mercurial temperament of the American people and the slow solution of their great experiment.

XXXVIII

WOMAN SUFFRAGE

WOMAN Suffrage is a factor in the governmental system of the United States as the result of the most important change that has ever been made in the Nation's organic law. The movement to bring it about dates in an organized way from 1848 when a group of earnest reformers led by Elizabeth Cady Stanton, Lucretia Mott, Martha C. Wright, and Mary Ann McClintock met at Seneca Falls, N. Y., in the first woman's rights convention in all history. Its real beginnings, however, antedate that by 200 years. In 1499 women signed a petition in England for the right to vote, and Mrs. Margaret Brent gave expression to this spirit in the American colony of Maryland in 1647 when, as heir of Lord Calvert, a brother of Lord Baltimore, and executor of the estates of both, she demanded "place and voice" in the colonial legislature.

Mistress Brent's demand was denied, but shortly thereafter women property owners were voting in Virginia and Massachusetts. Abigail Adams's famous letter to her husband, John Adams, as a member of the Continental Congress, shows that the suffrage cause had its advocates from the very outset of the struggle for independence and representative government. Mrs. Adams urged her husband to remember the ladies and warned him: "If particular care and attention are not paid to the ladies we are determined to foment a rebellion and will not hold ourselves bound to obey any laws in which we have no voice or representation."

Adams and his contemporaries evidently were not alarmed by this threat, for the Constitution did not give the ballot to women and all of the new States restricted voting to male

citizens except New Jersey, which fixed a property qualification that applied to both sexes. Women voted in that State until the politicians decided it would be to their interest to put a stop to it and in 1807 procured the passage by the legislature of an act limiting the franchise to white male citizens.

Woman's right to the ballot was first sought through amendments to State constitutions, then through an amendment to the Federal Constitution, then the fight was directed again to the States, only to be swung back for the final successful drive for the Federal amendment. The National Woman Suffrage Association was organized in 1869 to work for a sixteenth amendment to the Federal Constitution, and representatives of the association appeared before the committees of every Congress from that year until 1919. In 1878 Senator A. A. Sargent, of California, presented the amendment which thereafter was introduced into every Congress until it was adopted and ratified in 1920 as the nineteenth amendment: "The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of sex."

In all, through the State campaigns that had been made, 15 States had given women full suffrage before the final victory was won. The political parties have not hesitated in welcoming the new voters. Both the Republicans and the Democrats have made women vice chairmen of their national executive committees, and have placed women on other important committees, or have made it possible for them to gain places in party organization through election.

Women who are becoming interested in public affairs are at some disadvantage through lack of experience, but they have at least one advantage over the male voter, in that special effort is made to explain fundamentals of government to them. Boys coming of age have always been drawn into politics gradually. They have absorbed their information and ideas from hearing men talk, and from hearing the traditional

type of election oratory. But when so many women without this background became voters suddenly, it was obvious at once that they must be especially instructed.

One nonpartisan organization that is working toward this end is the National League of Women Voters. The aim of the league is: "Every woman an intelligent voter." It conducts citizenship classes and schools, distributes nonpartisan information concerning candidates, and sends out speakers, all in the interest of making clear to women the important business of casting a ballot. While it is not easy to show plainly that every vote cast has far-reaching effects, and while it is still more difficult to show that the effect of a vote comes back upon the voter in unexpected and indirect ways, yet these are the facts that women are urged to grasp in order to become level-headed and intelligent voters.

The prediction that women would not use the ballot is said by the League of Women Voters to have proved groundless, although it is a fact that the United States has too many nonvoting voters of both sexes. Amendments to State constitutions have been carried by less than 8 per cent of the voting population, because the voters ignored their own interests. It is estimated that only 49 per cent of the qualified voters went to the polls at the 1920 presidential election. As the votes of men and women are not counted separately in many States, it is impossible to make accurate comparisons along this line. It is said, however, that as many as 55 per cent of the women voters cast ballots in some of the States. The League of Women Voters tells of one town in Nebraska where interest in voting was so keen that every woman voter in town turned out on election day except one who was sick in bed. Such a complete return is obviously impossible in most communities. There must always be an indefinite percentage of voters who are ill, away from home, or otherwise unavoidably detained from the polls. The specific aim of the league is to get out 75 per cent of the possible vote, both male and female.

Ingenious devices are used to keep the duties of citizenship before the women of the country. In Canton, Ohio, the cooperation of the dairymen was obtained to remind each household of registration day. On that important morning, every bottle of milk delivered in Canton wore a paper collar on which was printed in staring letters: "Registration Day. Don't forget to register."

All these campaigns to interest women in voting and the results of the campaigns indicate that the woman voter is taking a serious part in governmental affairs in general. Along only one line are women more or less organized as a sex. That is in regard to welfare measures. It was to be expected that women would promote legislation to raise the standards of health and well-being in the home. Women are not working for these changes alone, in the sense that men are opposed to them, but women naturally sponsor these measures, and it is certain that there is now an unprecedented amount of interest manifested in health and human welfare. The Shepherd-Towner Maternity Law, which enables the States to do more for the health of mothers and babies, is cited as an example of women's influence.

The Cable Act, by which women who marry foreigners are enabled to retain their American citizenship, is another piece of legislation which principally affects women and which is generally attributed to their efforts. Before this law was passed, an American woman who married a foreigner lost her rights and privileges of citizenship in this country, while an American man who married an alien woman thereby conferred upon her full citizenship. Now, the alien wife must prove her fitness to become an American by becoming regularly naturalized. This act is sometimes referred to as the death blow to the old common law idea that "man and wife are one, and that one is the man."

Although women have not organized politically in support of peace, the resolutions passed by the great majority of women's organizations indicate that their new political power

is a determining influence behind the efforts for world peace. It has been stated that more organized women are united on this question than on any other issue.

There is one other outstanding example of woman's political efforts as a sex—the work of the National Woman's Party to achieve a blanket amendment to the Constitution, giving women full equality with men before the law. The nineteenth amendment was known as the Susan B. Anthony amendment, in honor of one of the woman suffrage pioneers. The Equal Rights amendment, proposed by the Woman's Party as the twentieth amendment, is named for Lucretia Mott, another suffrage leader of the nineteenth century. In order to demonstrate the need for such a measure the Woman's Party has made compilations of the laws of each State in regard to women. These show that instances of discriminatory laws are still numerous. In three States—Alabama, Georgia, and Maryland—a father still has the right to will his children away from the custody of their mother. In Delaware, the husband can collect money damages when his wife is injured. In Michigan, married women do not have equal rights with husbands over joint property. Wisconsin passed the equal rights law as a State measure in 1921.

It has been said that one of the few valuable by-products of war in this country has been its effect on woman's status. With the men off fighting, the women of the Civil War entered shops and factories and proved that they were equal to such work. Even then, men, and women too, boycotted some stores in Maine where women clerks were employed. Men in Congress had promised that at the close of the Civil War "justice would be done" to the women of the country. But the war left the suffragists disorganized and without funds or influence. Interest in the cause was at low ebb.

It was in the presidential election of 1872 that Susan B. Anthony made her famous attempt to vote in order to test the legality of women being barred from the polls and in order to bring the suffrage cause before the public. She was

arrested and ordered by the judge of a New York county court to pay a fine of $100 and costs of the prosecution. To this demand the prisoner returned: "May it please your honor, I shall never pay a dollar of your unjust penalty." The judge, no doubt, realized that to jail the suffrage leader would create sympathy for her cause. At any rate, he dismissed the case and made no attempt to collect the fine.

The first suffrage victory was in Wyoming which enfranchised women in 1869. Almost a quarter of a century passed; then in 1893 Colorado was added, and a little later Utah and Idaho. From 1896 to 1910 there was an interval in which no States were won. Then full suffrage was given to women in Washington and later in California, Oregon, Kansas, Arizona, Montana, Nevada, New York, Oklahoma, South Dakota, and Michigan. Presidential suffrage was granted to women in 13 States, and primary suffrage in two. So the record stood when the nineteenth amendment was ratified by the necessary 36 States and became part of the Constitution.

Adding States to the suffrage list was for decades the set task for feminists. Between 1870 and 1910 it is estimated that 480 campaigns for suffrage amendments to State constitutions were conducted. The National Woman Suffrage Association had a congressional committee which faithfully had the same constitutional amendment presented to every Congress for years.

This was the situation when Alice Paul became chairman of the national congressional committee in 1912. Like two other famous suffrage pioneers, she is a Quaker. She determined to make woman suffrage by Federal action a national issue. From that time, until suffrage was achieved, it is said that she never read, talked, or thought about anything except the national campaign. As a result of the Quaker leader's determination to work entirely for a Federal amendment, she and a group of followers broke away from the conservative body of suffragists and formed the Congressional Union, which later became the National Woman's Party. The

activity of these women was so picturesque as to bring about much publicity. Probably no group of women ever received more attention from the press. On March 3, 1913, when Woodrow Wilson arrived in Washington for his inauguration the next day, he drove down deserted streets. The people were watching a big suffrage parade on Pennsylvania Avenue.

The militant faction of suffragists was of the opinion that the political party in power was to be held responsible for giving women the vote. In due time, the new President received delegations of women interested in learning his attitude toward Federal suffrage. At first the President stated, in effect, that he had given the subject no careful consideration. Later, he inclined to the view that suffrage should be settled by States, rather than by the National Government. Adhering to this principle, Mr. Wilson voted for woman suffrage in New Jersey in 1915.

Two years later, the Government called on women in the name of patriotism to forget everything except the business of winning the World War. This time, however, all suffragists continued their campaign and did war work as well. Older women remembered that in the Civil and Spanish American Wars, particularly in the case of the former, a conservative wave had followed the close of hostilities, and that wave had engulfed and nearly annihilated the suffrage organizations. They did not purpose to be caught in the same position again. They continued with even greater determination their efforts to achieve suffrage.

The work of Alice Paul and her band of feminists was most spectacular. In spite of criticism and in spite of battles in Europe, she and her followers kept suffrage news in the headlines of the press. When President Wilson addressed Congress in the House Chamber, a purple, white, and gold banner dropped from the gallery became the featured event of the day in the press, while the presidential message was shifted to the second page of the papers.

Early in 1917 the militants began picketing the White

House, as a constant reminder to the President that women were waiting for the Federal amendment. The picketing, which began peacefully enough, soon became an exciting drama of arrests, trials, and fines which the suffragists refused to pay. Finally there was a climax of workhouse sentences and hunger strikes. Always there were headlines and columns about the doings of the militants in the papers for the public to discuss. Conservative suffragists, who worked quietly, questioned the wisdom of the militant tactics. It is still a matter of controversy as to how much of suffrage was due to the efforts of the militant forces in Washington.

In 1918, President Wilson said before the Senate: "The services of women during this supreme crisis of the world's history have been of the most signal usefulness and distinction. The war could not have been fought without them, or its sacrifices endured. It is high time that some part of our debt of gratitude to them should be acknowledged and paid, and the only acknowledgment they ask is their admission to the suffrage. Can we justly refuse it?"

The House passed the amendment May 21, 1919, while the Senate passed it June 4, 1919. The necessary ratification by two-thirds of the States proceeded fairly rapidly. Illinois is generally regarded as the first State to ratify, although Wisconsin also has claimed the honor because a question as to the legality of the ratification procedure in Illinois caused the State legislature there to vote again on the measure later. Tennessee, the thirty-sixth State, took action in August, 1920. Abigail Adams, colonial suffragist, was dead, but her plea to "remember the ladies" was answered at last.

XXXIX

OUTLYING POSSESSIONS

ALTHOUGH the United States never has sought a foot of territory by conquest beyond her own boundaries, yet to-day our flag flies over a vast and widely scattered empire, whose peoples speak a hundred different tongues, but are coming, notwithstanding many handicaps, to understand the basic ideals that are the foundation of the Republic's greatness.

Beginning with the purchase of Alaska, shortly after the close of the Civil War, through various causes, additional territory beyond the continental limits has been acquired so that in the present day the United States exercises dominion and keeps a paternal eye upon more than 700,000 square miles of territory not within the 48 States. More than 12,000,000 people live in these outlying possessions.

We paid $7,200,000 for Alaska in 1867, and it contains more than 508,000 square miles. From its easternmost point to the most western islet of the Aleutian Islands, Alaska covers over 58 degrees of latitude, which is more than the number between New York and San Francisco, while the distance is greater from Cape Muzon, the southernmost point of the Territory, to Point Barrow under the Arctic Circle, than from New Orleans to the Great Lakes. Strangely paradoxical is the fact that Alaska is so far West that it is East. It is further from Juneau, the capital of the Territory, to the most western of the Aleutian Islands, than it is from Juneau to Eastport, Me.

In the Philippines there are over 3,000 islands aggregating in area about 115,000 square miles, spreading across tropic

seas from near the Equator northward for almost 1,000 miles. They have a population of about 11,000,000.

The aim of the United States in the government of these far-off peoples was perhaps best set forth by President McKinley in the instructions given the Commissioners to the Philippines in 1900. Mr. McKinley said: "In all the forms of government and administrative provisions which they are authorized to prescribe, the Commission should bear in mind that the government which they are establishing is designed not for our satisfaction or for the expression of our theoretical views, but for the happiness, peace, and prosperity of the people of the Philippine Islands, and the measures adopted should be made to conform to their customs, habits, and even their prejudices, to the fullest extent consistent with the accomplishment of the indispensable requisites of just and effective government."

Since the McKinley Commission went to the Philippines that has been the policy for those islands and for those in the Atlantic over which this country also exercises dominion and jurisdiction. In 20 years or more of dealing with alien peoples the record of the United States shows plainly that it has sought to further the ends of the governed and not to exploit them for the selfish advancement of Americans. As a consequence it is the boast of those who come into most direct contact with the people of these lands that they respect American authority and believe in republican ideals. They have been brought far along the road toward prosperity; their general welfare has been a constant source of anxious care; their sanitary conditions have been improved, and they have been taught many of the fundamentals of self-government, so that it may be possible ultimately for them to govern themselves.

Alaska derives its name from an English corruption of the native word "al-ay-ek-sa," probably meaning "The Great Land" or "Mainland." It was first visited by Russian officers in 1741, and soon afterwards Russian traders and trappers

entered the country. It was the first of the outlying possessions to be acquired by the United States. Secretary Seward brought the negotiations to a successful conclusion in 1867 and this vast country became a part of the Nation. It has its own governor and legislature which function as did those in the Territories within the country until they were admitted to statehood. It has a Delegate in Congress.

Until 1896, when the first grand rush for gold began, but little was known about this Territory. But as thousands of Americans poured in, its natural resources came to be better understood and its development along other lines began. It has thousands upon thousands of square miles of timber. Much of its soil is rich and capable of agricultural development, particularly along the coast line and in the Yukon River Valley. It has been estimated that there are 100,000 square miles of land in Alaska that might be used for pasturage, or sown with crops suitable for the sustenance of life. Although in the northern part of the Territory, and in the interior, the winters are extremely cold, along the coast, in the part which runs down toward the continental United States, the climate is mild. Sitka has cooler summers and warmer winters than Washington, D. C., and its average temperature for a year is just one degree lower than that of the National Capital.

Mount McKinley National Park, created by act of Congress in 1917, contains 1,692,000 acres of magnificent scenery. The park derives its name from Mount McKinley, the highest mountain in North America. Picturesque caribou with enormous antlers, moose, mountain sheep, and the great Alaskan brown bear frequent this park and add to its great natural beauty.

More impressive in their rugged splendor than their famous counterparts in Norway, the Alaskan fiords, with their precipitous icy walls, form a coast line over 26,000 miles long. Into three of these inlets alone 31 glaciers of the first order, slow moving rivers of solid ice, flow into the sea.

Malaspina Glacier, the largest, covers 1,500 square miles, a greater area than the State of Rhode Island. Where these glaciers reach the sea, huge masses break off and form icebergs. Many of the fiords are jammed from wall to wall with icebergs discharged every few minutes with a thunderous roar, audible 10 miles away. Smaller masses form ice floes which drift rapidly to sea. Often these ice rafts are of considerable area and are populated with polar bears and other animals of the Arctic regions. It has been the peculiar experience of sailors landing on ice floes during the summer season to suffer from the heat of the sun.

Alaska, land of wonderful diversity, has a volcanic belt 1,600 miles long. Among its 60 active or recently active volcanoes are Mount Wrangel, 14,000 feet in height, Mount Shishaldin, rivaling in graceful outline famous Fujiyama, and Bogoslof, whose suddenly appearing and disappearing islands have startled sailors for the past hundred years.

In Bering Sea, estimates show 100,000 square miles of codfish banks, and the salmon are to be found in incredible numbers. In 1922 the fur industry amounted to more than $2,000,000. There have been new discoveries of gold, and oil is being produced in small quantities.

The United States Government has spent millions of dollars on the communication systems of Alaska. Four thousand miles of cable, wireless, and land lines connect Seattle, Wash., with the towns of Sitka and Nome, while 90 per cent of all the settlements and mining camps in the Territory may be reached by telephone and telegraph. The Government has also completed the construction of a railroad reaching into the heart of this far-off empire, at a cost of $56,000,000. This line extends from Seward to Fairbanks, a distance of 467 miles, penetrating into the very center of the Territory, and is the first railroad ever built and operated by our Government. Although operated at a loss, it is the first step in developing this northern country that must be followed by the construction of roads and trails upon a scale

of great magnitude in order to encourage settlement and industry.

It was partly for the purpose of visiting Alaska that President Harding started upon the westward journey which ended with his death in San Francisco. He went to see whether there was some peculiar problem in that Territory, but apparently he found there was none. "The problem of Alaska," he said after he had returned to this country, "has been dinned into our ears a great deal at Washington. Somehow, in Alaska one doesn't hear much of it or feel acutely conscious of its existence. There has been much misunderstanding, no little misrepresentation, and some disposition to hysteria about Alaska. There is no need for Government-managed, Federally-paid-for, hot-house development. There is no broad problem of Alaska, despite the insistence of its existence."

Henry C. Wallace, Secretary of Agriculture, who went with Mr. Harding to Alaska, said after his return that his department had three major problems in the Territory. One was the development and use of the forests; the second, the administering of the game and fur laws; the third, helping Alaska grow the food it needs, instead of bringing it in at great expense.

The Philippines comprise a group of some 3,000 islands in the great Malay Archipelago, paralleling the coast of Asia for a thousand miles. They are situated midway east and west relative to the Continent of Asia, and are only a little east of the midway point on the sailing route from New York around the world. Luzon, the largest of the islands, has an area as great as that of Denmark, Belgium, and Holland combined. The population of the Philippines exceeds that of Canada by over 3,000,000 people. Of the 11,000,000 inhabitants, 9,350,000 are Christians with 400,000 Mohammedans and 540,000 Pagans. There are about 7,000 Americans in the islands, more than 4,000 Spaniards, about 1,200 English, 55,000 Chinese, and 12,600 Japanese. The total

wealth of the islands is estimated at $5,500,000,000. Of this $229,000,000 is represented by agricultural lands comprising about one-tenth of the entire area of the group. Of the 65,000 square miles of forests with commercial value, 99 per cent belongs to the Government.

The cause of education has not been neglected in the Philippines. Broadly speaking, Filipino boys and girls are being taught the same subjects as children in the United States, with only the modifications suitable to island conditions and to the people. There are nearly 6,500 schools with a total enrollment of over 1,000,000. This includes the private institutions. There are 18,000 teachers, of whom 500 are Americans. There are 17 colleges and universities. The enrollment of the University of the Philippines is above the 4,000 mark, and there are several thousand Filipinos attending schools and colleges in the United States.

One of the most popular courses with the young Filipino girl is the making of embroidery. Every female child receives instruction in this branch of needlework, starting in as early as the third grade. Embroidery work is produced in many countries of the Orient, but nowhere is the work as dainty as that produced by the skillful Filipinos. The output of the islands is practically absorbed by the United States. Hand embroidery has been known in the islands for over four centuries, having been introduced by Spanish, French, and Belgian nuns, who taught the art to the Filipino women in their convents. It has been demonstrated that good embroidery work runs in family groups, certain families doing finer work than others, with much less training and effort. Other crafts which afford a means of expression for the artistry of the Filipino are also taught in the schools. These comprise mainly weaving in reeds and textiles.

Athletics in the Philippines must be given much credit for the physical and civic betterment of the people. Many vicious forms of amusement have been displaced by healthful outdoor games. It was at first very difficult to induce the

girls to take part in outdoor forms of recreation. The old standard of propriety for girls did not permit of their engaging in any strenuous exercise. This prejudice was largely overcome by the introduction of calisthenics. While later a certain interest in tennis was developed, it has been found that indoor baseball is the form of exercise most suited to the needs of the young woman of the Philippines. The benefits of the introduction of these forms of sport have been even more marked in the girls than in the boys.

Like all tropical countries the Philippines had a high mortality rate. In the city of Manila in 1904, shortly after the United States took over the Islands, the death rate was 45.57, and the infant mortality was 801.86 per thousand. In 1913 the rate in Manila was only 22.58 per thousand and the infant rate only 322.46. In 1920 the rate had gone up in Manila to 26.47, but the infant rate had dropped further to 213.02 per thousand.

The Philippines have been more or less dependent upon, or more or less dominated and controlled by, some other nation since they first appeared in the pages of history. They were under the rule of Spain at the outbreak of the war between that country and the United States, and were taken over by this country in working out terms of peace. In the early days of American control there was but one legislative body, the Philippine Commission, appointed by the President of the United States. In 1907 one-half the law-making power, that of the lower house, was turned over to a body of elected Filipinos, known as the Philippine Assembly, the Commission becoming the upper house.

The desire of many Filipinos for complete independence has not been lost sight of and gradually the way has been paved for actual autonomy. After the creation of the lower house of Filipinos the next step was the passage by the Congress of the United States of the measure known as the Jones Bill, which provided another advance toward self-government. Under this law the Christian and civilized

provinces of the islands were permitted to elect a senate and house, and the Governor General, appointed by the President of the United States, was authorized to appoint representatives from the non-Christian portions of the islands. The legislature so chosen governs the entire archipelago. As the legislative machinery went into the hands of the Filipinos, more and more Americans who had been in the Philippine Government service were dropped and it became almost 100 per cent a native service.

The existing Government of the Philippine Islands resembles closely our own Federal Government. It has the same division of powers and responsibilities between the executive, legislative, and judicial branches; and its ordinary business is carried on by executive departments corresponding in many respects to our own Finances are handled under the budget system and its civil service organization is efficient and especially active in making the merit system effective. All expenses incurred on account of the government of the islands, excepting work undertaken by the United States, are paid for out of the Philippine treasury.

Trade with the United States from our great eastern insular possession has grown tremendously. In 1903 imports and exports combined amounted to $17,807,000. By 1920 these figures had increased more than tenfold to $197,506,000. Forty-five daily newspapers with a total circulation of 134,000, and weekly and other publications, with 195,700 subscribers, keep the Filipinos informed and entertained. In 1920 there were 9,519 persons in the islands who rendered income-tax returns, of whom 3,667 were Filipinos, 1,434 were Americans, 3,123 Chinese, and 1,200 of other nationalities. In the general election in 1919, 672,122 votes were cast. Women do not have the suffrage.

In the early days of American occupation it was found necessary to establish some sort of native force to deal with law breakers. The type of men selected included some of the hardiest and at times most violent and dangerous men of the

archipelago. With remarkable adaptability they accustomed themselves to military discipline and restraint, and are to-day known as a most dependable and thoroughly efficient constabulary, numbering 5,800 officers and men. This force is intended for the preservation of order in times of peace only, and the recommendation has been made that the Filipino people should have a body of troops trained and equipped to meet aggression from without.

Since American occupation began there have been many miles of roads constructed and hundreds of bridges built. A recent report said that the islands now have 2,920 miles of roads, rated as first class, and 7,500 bridges and culverts. A full-fledged public service commission now functions with more than 800 companies, including railways, steamships, telephone systems, and similar public service corporations subject to it.

Of the other islands in the Pacific which come under American dominion the Hawaiian group is the largest and most important. Hawaii became a part of the United States in 1898, when it was annexed by action of Congress. It has its own legislature, a Delegate in our Congress, and a governor, who is appointed by our President, exactly as any continental territory of this country had previous to its admission as a State. The Hawaiians are a people of Malayan descent. For many years they were governed by their own royal line. The islands, known as the Sandwich Islands for centuries, are at the "cross-roads of the Pacific," on the steamship lines between San Francisco and the Orient, and Hawaii has long been known as one of the ideal vacation spots of the world. Its climate is healthful and mild. Much of the agricultural land is devoted to great sugar plantations and fruit trees are plentiful. The Hawaiian pineapple is a favorite in continental United States.

The islands of the group that are inhabited contain more than 6,000 square miles, and there are many others which have not yet been settled. Mauna Loa is said to be the

greatest volcano in the world. Reaching into the clouds 13,675 feet, its base stretches out for 75 miles in one direction and 50 miles in another. The United States Government has wisely purchased and reserved for itself several thousand acres of the scenically magnificent portions of Hawaii, including the Mauna Loa section. Kilauea volcano has the largest active crater yet discovered, 8 miles in circumference. More impressive even is the Lake of Living Fire in Halemaumau. This gigantic pool of burning lava has strange idiosyncrasies. During a recent year local earthquake shocks opened subterranean vents through which the molten lava seeped away at the rate of 1 foot per hour. This process continued until instead of there being a lake of boiling lava with a level but 40 feet from the surface and 1,200 across, there was a rumbling, smoking chasm a thousand feet deep and nearly 2,000 feet across.

In addition to the Philippines and Hawaii, the United States also controls the Samoan Islands in the Pacific. The commandant of the naval station at Pago Pago is the governor of these islands. He has legislative and executive power over the inhabitants, but the exercise of his authority is tempered by the desire to recognize native customs not inconsistent with the laws of the United States.

Guam, another island in the Pacific, belongs to this country; is used as a naval station and, in these days of cable, wireless, and airplanes, has become an important link in the transoceanic communications system. The commandant of the naval station there is also the island's governor. To New Zealanders this island formerly was the mythical port for which vessels leaving their harbors would clear when sailing under sealed orders. These orders when opened at sea always contained instructions to proceed to some other part of the world. So much of a custom had this become that many New Zealanders came to regard Guam as a place existing only in the imagination of ship owners. Recently an American visiting New Zealand was questioned as to his next

destination and named Guam. Imagine his astonishment when his friends applauded him loudly for his excellent joke, not one of them believing that such a place existed.

In the Atlantic the United States has no such vast possessions as the Philippines, but it has control over Porto Rico and owns the Virgin Islands, which for various reasons are of importance. Porto Rico, which has an estimated population of about 1,300,000, came to this country with the Philippines after the War with Spain. Its name, originally spelled Puerto Rico and applied only to what is now known as the city of San Juan, literally means "excellent harbor." The island was one of the first portions of America to be inhabited by white men and until we acquired the Virgin Islands was the only soil under our flag that was visited by Columbus. It is always summer in Porto Rico, without the extremes of heat typical of tropical climes and with refreshing trade winds that make it a delightful vacation land. Only 1,400 miles from New York, it has many visitors who are always surprised and delighted by its excellent roads, of which there are more than 1,200 miles. Porto Rico is ahead of many of the States in the matter of good roads.

The governor, attorney general, commissioner of education, auditor, and justices of the supreme court are appointed by our Chief Executive, but the legislature is elected by the people. Thus there is a large measure of self-government. During the war these people were enthusiastic and intensely patriotic, furnishing more than 15,000 men for the Army and purchasing many thousands of dollars' worth of Liberty bonds, in addition to furnishing nearly $400,000 in membership fees and subscriptions to the Red Cross. Porto Rico's quota of the White House wool sold for $4,000, an amount higher than that received from any State in the Union.

For 60 years before we assumed control of this insular gem, it had been plagued with smallpox, and the victims of that disease numbered thousands. When the American Army went in, the first thing it did was to vaccinate every person

on the island. There were about 1,000,000 in that vaccination party, and yet it went off without a hitch and the disease was virtually wiped out of existence within a short time. To-day Porto Rico has its own Institute of Tropical Medicine and Hygiene devoted to research on tropical diseases and hygienic conditions.

The Virgin Islands were bought from Denmark for $25,000,000, because of the fact that they easily command the eastern entrance to the Panama Canal. They are a part of the group of islands known as the West Indies, and were discovered by Columbus in 1493. There are three principal islands, St. Thomas, St. Croix, and St. John, as well as several lesser ones, many of them unnamed and uninhabited. The total area of the group is less than 150 square miles, with a population of about 26,000 people, of whom only about 2,000 are whites.

The Virgin Islands are under the direct supervision of the United States Navy, which has conducted the affairs of the inhabitants with the same fidelity to republican ideals and the same high sense of duty that has marked its administration in the far-off Pacific. No better proof of this fact need be offered than the reduction of the death rate from 32 per thousand in 1901 to 21.8 per thousand in 1916. The death rate in St. Thomas during 1919 was only 17.3 per thousand and a recent investigation, by Commissioners appointed by Congress, revealed that the rate of infant mortality had been cut one-half since the acquisition of this territory by the United States. The laws are made by colonial councils, and, for the most part, are old Danish laws. The people are intensely interested in the United States, are learning its customs and its ideals, and have a sense of security and hopefulness since they have become identified with the great Republic of the West.

XL

THE AMERICAN RED CROSS

THE American Red Cross is a semigovernmental institution. Originally incorporated by Congress in 1881, its charter provides that the President of the United States may appoint one-third of the governing body, and requires the annual submission to the War Department of its itemized accounts of receipts and expenditures. The by-laws also provide that the President shall, upon his acceptance, be ex officio President of the American Red Cross. No President has yet refused the office and all have evinced great interest in the splendid work of the organization which carries on its activities in every country under the sun.

Nearly $7,000,000 was expended by the Red Cross in a recent year for the relief of distressed humanity, about one-half of this amount being devoted to the needs of World War veterans and their families. Approximately $400,000 was spent in the United States to succor the 13,000 homeless victims of 110 disasters, in which 240 people were killed, 991 injured, and about $21,000,000 worth of property destroyed. About $3,000,000 additional was disbursed in caring for the 1,150,000 Greek and Armenian refugees who fled into Greece before the Turkish invasion of Thrace.

Immediately upon receipt of the news of the earthquake and tidal wave in Japan, in which tens of thousands of people lost their lives and many millions more were injured, rendered homeless, and starving, the Red Cross made an effort, which can only adequately be described as superhuman, to

provide immediate relief for the sufferers in the Orient. While Japan was still shaken by earth tremors, the American Red Cross swiftly organized for service. The purchasing officer, appointed one day, had spent more than $2,000,000 on supplies by the following afternoon. Within a few days $5,000,000 was raised throughout the United States, $1,000,000 was cabled to Japan, and $2,500,000 worth of roofing, hospital supplies, disinfectants, food, and clothing were on their way to the scene of the disaster. By the next week the Japanese disaster fund had reached the $10,000,000 mark.

Wherever in the world man is the victim of war or famine, cyclone, flood, earthquake, or explosion, afflicted peoples turn with confidence to the American Red Cross. The founding of such an institution is a monument to the progress of civilization. Its origin and history make a fascinating story replete with tales of splendid heroism and noble self-sacrifice. The battle field was the first scene of the operations of relief workers. More than a thousand years ago Haldora of Iceland called to the women of her household to go dress the wounds of the warriors, friends and foes alike. In the twelfth century there were the famous Knights Hospitalers of St. John of Jerusalem, and during the Thirty Years' War the Sisters of Charity nursed the fallen warriors as well as victims of famine and pestilence. But there was yet no well-equipped and trained organization such as we have to-day. Only 70 years ago, in answer to an urgent appeal for help to care for the sick and suffering soldiers in the Crimean War, Florence Nightingale and her 38 nurses went forth and made history for the world.

The insanitary conditions under which troops were housed and fed during the Civil War inspired a number of patriotic and humane men and women to establish the Sanitary Commission. This was the forerunner of the Red Cross in the United States. The Sanitary Relief Corps of this body made the first use of what is known as the Geneva cross as a means of designating a relief personnel. In 1863 an international

conference was held in Geneva, Switzerland, for the purpose of securing the agreement of the several countries to carefully formulated provisions for the care of the wounded in time of war. As a compliment to Switzerland, the Swiss flag with its colors reversed—a red cross on a white ground—was adopted as the world-wide insignia of humanity and neutrality. At that time the United States did not look with favor upon the Geneva Treaty, and not until 1882 was it accepted by President Arthur and ratified by the Senate. It was through the good offices of Clara Barton, who had distinguished herself during the Civil War by caring for the sick and disabled, that this country finally adhered to the international agreement. From 1877, when she first presented the matter to President Hayes, until the date of its adoption she worked indefatigably for the treaty. In July, 1881, there was incorporated by act of Congress an organization under the name of "The American Association of the Red Cross," of which Miss Barton was president. Upon later reincorporation the name was changed to the present title.

In startling contrast to the lack of organized relief during the Civil War the work of the Red Cross in the late war stands forth as the greatest humanitarian effort ever put forth by a single agency. During the period from July 1, 1917, to February 28, 1919, there were 31,000,000 Red Cross members in the United States. Of this total 11,000,000 were children. Contributions of money and material amounting to $400,000,000 were dispensed through the agency of 8,100,000 Red Cross workers operating in the United States and 25 foreign countries. The Red Cross canteens in France served 15,376,000 soldiers, while aid was also extended to 1,726,000 civilian refugees. To protect the doughboys and men in other branches of the service from the inclemency of the European climate, 11,000,000 knitted articles were given them, including 3,600,000 pairs of socks, 4,000,000 sweaters, 2,000,000 wristlets, and 1,000,000 each of woolen helmets and mufflers. A total of 372,000,000 articles produced by volun-

teer workers were devoted to the uses of our fighting forces and needy civilians. To encourage the boys to keep in touch with the home folks, over 6,000,000 sheets of writing paper and half a million tablets were handed out free of charge, together with 3,500,000 envelopes. Almost every conceivable article that man might reasonably be expected to use in time of war was to be had for the asking at the Red Cross huts. From comfort kits, combs, games, and billions of cigarettes, to fly swatters and pianos, all were made available to the Nation's sons on land and sea. Over 3,000,000 convalescent American soldiers were helped to forget their troubles in the pleasure of attending Red Cross movies in France, while nearly 2,000,000 slept more soundly in the pajamas donated through the same beneficent agency.

Outside of the work in France, the Red Cross did relief work in 24 foreign countries during the twenty-month war period. More than $75,000,000 was spent in these operations which necessitated furnishing suitable articles of food and clothing to soldiers and civilians in countries as widely apart and as climatically different as Belgium and Palestine, as Italy and Siberia. To determine whether supplies sent to American prisoners of war reached their destination, the prisoners were asked to sign and return a card inclosed in each package. Acknowledgments were received for 90 per cent of the shipments.

The American Red Cross develops leaders for tne important task of protecting the Nation's health against the onslaughts of disease. In an emergency 40,000 thoroughly trained and capable Red Cross nurses could instantly report for duty. In addition there are hundreds of thousands of young women to whom certificates have been issued by the Red Cross for the completion of courses of training in home care of the sick. During the past year 30,000 of these certificates were issued and 70,000 students were under instruction. In the same period Red Cross public health nurses cared for 180,000 patients in their homes, made 1,279,191 visits to sick

persons, and inspected 1,783,250 children in 64,000 schools. The Red Cross considers the health of the Nation of paramount importance and has formulated plans for sweeping campaigns against disease of all kinds. Its Health Advisory Committee, composed of eminent physicians, surgeons, and health experts, is its board of strategy, and has outlined a comprehensive program for the great army of workers in the field. The organization of classes in the principles of nutrition, in first aid and life saving, and like subjects, is well under way, and the people of the United States are showing their appreciation by cooperating in a whole-hearted manner.

Chairman John Barton Payne estimates that there may be anticipated each year at least six disasters of such magnitude as to require the assistance of the national organization. It is also well recognized that not all disasters are alike in their destructiveness. Property suffers the greatest destruction in fires, floods, and cyclones. In mine explosions, shipwrecks, and epidemics the great loss is that of human life. Both human life and property suffer in large measure through volcanic eruptions and earthquakes. Through long experience the Red Cross has learned that charity must be dispensed wisely as well as generously. Before disbursing money in times of stress, it has been found necessary to inquire closely into the purposes for which it is sought. Catastrophes like that at San Francisco have demonstrated that should there be offered to each refugee in place of food, clothing, or household articles, half of their value in money, there would be a prompt acceptance in 90 per cent of the cases. The practical results in the alleviation of distress would, however, prove far from satisfactory.

Relief workers frequently experience the grossest ingratitude on the part of the people they have served. It has been observed that in most instances these ingrates prove to be those who have lost little and are merely seeking to take a mean advantage of the sympathetic generosity always displayed in times of stress. Imposters must be guarded against

constantly, and precautions adopted, to prevent their enriching themselves at the expense of the real sufferers.

An unusual and interesting case of a pseudorefugee was that of a 16-year-old boy who claimed to be a survivor of the Titanic disaster. So vividly did he describe his experiences during the shipwreck that it seemed impossible to deny his statement. Investigation developed the fact that he was mentally deficient and reading the accounts in the newspapers had made such an impression on his mind that he became honestly convinced that he had himself been on the vessel when she foundered.

The generous open-handedness of Americans, always abundantly evident in times of distress, is well illustrated by the experience of the relief workers after the San Francisco earthquake. Hundreds of carloads of supplies speedily congested the railroad yards of the western metropolis. They came in such numbers that storage space could not be found for their contents and frequently perishable food like butter and eggs wasted their best days mixed with boxes of clothing and barrels of flour. Then a nation-wide wave of sympathy for the babies brought such a quantity of condensed milk that a hurried dispatch was sent to Washington to the effect that there was enough on hand to last 16 years, and plenty of fresh milk was readily obtainable in the surrounding country. But no one thought of sending such a prosaic article as a piece of soap until an urgent appeal was broadcasted for that necessary item. On the other hand, large numbers of ball gowns and satin slippers were received.

Aside from its practical importance as a source of income for the alleviation of suffering and the relief of stricken humanity, the Junior American Red Cross is one of our most important national institutions, for the reason that it infuses in our boys and girls the spirit of sympathy and the habit of generous self-denial which add strength and beauty to the national character. There are now enrolled in this organization some 5,000,000 pupils in 25,000 schools. In each of the

150,000 schoolrooms where these children pursue their studies there hangs a Junior Red Cross Calendar. These calendars contain a program of activities to be undertaken by the juvenile members, setting forth suggestions under such headings as "Personal Service," "Service for the School," "Community Service," "National Service," and "World Service." The juveniles also have their own publication, "The Junior Red Cross News," with a circulation of 150,000 weekly.

Among the impressive edifices gracing the National Capital, the beautiful structure which is now the headquarters of the American Red Cross takes its place as a splendid monument to the heroic men and women who during more than half a century have relieved the sufferings, dried the tears, and saved the lives of unnumbered multitudes. The building and site, which embraces an entire city block, cost $800,000, half of which was furnished by the United States Government. The remaining $400,000 was raised from unofficial sources. Mrs. Russell Sage gave $150,000 of this sum; Capt. James A. Scrymser, $100,000; the Rockefeller Foundation, $100,000; Mrs. E. H. Harriman, $50,000. Several thousand dollars additional were contributed for interior decoration and furnishings, which are both artistic and serviceable. Not one cent of the funds collected by the Red Cross for relief purposes was spent on the building or its contents, the entire outlay being supplied by governmental and private donations.

At the head of the broad stairway from the lower hall is a marble tablet bearing in letters of gold the dedication: "A Memorial Built By the Government of the United States and Patriotic Citizens to The Women of the North and the Women of the South Held in Loving Memory By a Now United Country." Thus is acknowledged the Nation's debt to the brave souls who succored the fallen in the Civil War. Above the tablet on the ledges of three high windows are marble busts symbolic of Faith, Hope, and Charity. The

assembly room on the second floor is an artistic triumph in interior decoration and contains three justly famous stained-glass windows. The building is equipped with a conference room, a splendid library, and numerous well-lighted and conveniently located offices. In the rear of the main building there are four annexes, where the more prosaic but quite essential work of conducting the business operations of the organization is carried on.

In the basement of the building is a museum containing many exhibits illustrative of the methods employed by the Red Cross in caring for our soldiers during the World War. Among the interesting relics in this exhibit is the first American flag raised by our troops in Chateau Thierry after the Germans had been driven out. In one corner stands a piano in a remarkably well-preserved condition, considering the service it has seen. Early in the war this piano was captured by the Germans. Later it was recaptured by our men when they took a German dugout. The 28th Division adopted it as their mascot and, despite military discipline, carried it with them wherever duty called. At the close of the war the engine hauling the train that carried these troops to Paris bore their piano strapped to the cowcatcher.

At the last roll call there were 3,506,500 members in this great humanitarian society, and plans are now under consideration to place upon its roster the names of at least 10 per cent of the people in the United States. Among the posters distributed by the Red Cross in its appeal for funds during the war was one showing a Red Cross nurse holding in her arms a miniature stretcher on which lay the figure of a wounded soldier. The appeal was irresistible. The aptness of the brief descriptive phrase was at once realized by millions. A title expressive of their esteem for the Red Cross had at last been suggested to the people. They accepted it with enthusiasm and used it on every possible occasion. This poster bore the words: "The Greatest Mother in the World."

XLI

THE PAN AMERICAN UNION

THE Pan American Union is the outward expression of the growing unity of interests and ideals of the nations of the American Continent. It is the outgrowth of the work of a few statesmen of far-sighted vision who were assembled in the city of Washington about 34 years ago by the various Republics. This conference of envoys, which aimed to pave the way for peace, friendship, and commerce, also resulted in an association of nations, which was called the International Bureau of the American Republics.

Later conferences of delegates of the various nations convened at Mexico City, Rio de Janeiro, and Buenos Aires, respectively, and further perfected and enlarged the work of the organization, the last-mentioned conference changing the name from that of the International Bureau of the American Republics to the more dignified title of the Pan American Union. The fifth conference held in Santiago, Chile, in 1923, still further broadened the Union's scope and activities.

The affairs of the Pan American Union are controlled by a governing board composed of the diplomatic representatives in Washington of the other American nations and the Secretary of State of the United States. The affairs of the Union are administered by a Director General, an assistant director, and a corps of specially trained assistants. Every day thousands of letters are received asking for information and advice on a great variety of subjects. Inquiries come, not only from those interested in commercial projects, but also from individuals desirous of securing employment, students seeking

aid in the completion of their education, and persons anxious for advice in the planning of vacation trips. One letter reached the Director containing the startling demand, "send me the Pan American Union."

The great bulk of the correspondence is confined to requests for data relative to agricultural, manufacturing, and marketing conditions and other trade matters of a like nature. Business men considering the advisability of entering new fields of commercial enterprise call upon the Union for the information they desire. In this way they save considerable sums of money which would otherwise be expended on costly trips to the proposed sphere of their operations. This service is furnished free of charge and is proving of inestimable value to the citizens of the several Republics.

Odd requests are not infrequently received. Recently a resident of the United States announced his willingness to relinquish the ownership of a freak horse, if the Pan American Union would kindly advise him of a suitable market in South America. The bureau was unable to promote the growth of international commerce in this instance. Neither was it in a position to accede to the demand of a schoolboy that he be furnished lead pencils for use in school. Another correspondent, who was weak on the subject of geography announced that he contemplated emigrating to Australia, and urged that he be supplied with complete information on that antipodal continent.

The work of the Union to-day is performed by a number of units or divisions. The activities of more particular interest to the general public are information and advice, publications, statistics, and library service. The section of education was created for the purpose of bringing the Republics of the Americas into closer educational and cultural relationship, and especially for arousing a desire on the part of teachers and students to study the language and geography of the other Americas. Due mainly to the efforts of this division of the Pan American Union, most of the leading colleges and

universities of the United States have granted scholarships to Latin American students who desired to continue their studies in this country. The increased number of Latin American students attending educational institutions in the United States has resulted in the establishment in nearly all the university centers and important cities of the country of Spanish clubs made up of Anglo-Americans and Spanish-Americans. Only a few of our educational institutions offer to defray living expenses in addition to providing free tuition and the Pan American Union is not provided with any fund to extend financial assistance to students. It does, however, present the names of deserving candidates to the American Association of University Women, which offers a fellowship of $1,000 a year to women graduates of Latin American colleges.

The official organ of the Pan American Union is the Bulletin, an illustrated monthly magazine published in English, Spanish, and Portuguese. The subject matter of the English edition reflects the general progress and activities of the Latin American nations. The Spanish edition carries to the people of the Spanish-speaking nations matter on economic, commercial, and industrial progress in the United States or other countries. The Portuguese edition is intended primarily for Brazil, although Portugal and other parts of the world using that language add largely to its readers. The Union also has for general distribution pamphlets on each of the Latin American Republics, containing a short statement of their history, their form of government, and a description of their products, industries, and resources. The organization prepares special data and special reports requested by representative firms and corporations if the desired information is not contained in the published documents. These inquiries cover a multitude of subjects, ranging from railroad development and finances to the market offered for canned fruits and vegetables. One division of the Union watches with scrutinizing care every source of information

relating to the movement of capital from Europe and the United States to Latin America, actual and prospective loans, records the budgets, selects data from presidential messages, from reports of municipalities, States, and nations. This division is called upon constantly by many of the great banking and bond-selling houses of the United States for data preliminary to the making of loans.

The library of the Union, known as the Columbus Memorial Library, is the largest single depository in the world specializing in works on Latin America. Among its 50,000 volumes are to be found reports from all of the ministerios of the 20 nations, as well as general and special works on history, travel, biography, science, education, and a multitude of other subjects. The number of books is continually being augmented as new books are issued by publishing houses all over the world. Hundreds of the books are in the English language and therefore useful to persons who do not understand the Spanish or Portuguese tongues. Among the books of this library are city, telephone, and trade directories containing the names of leading firms and individuals throughout the Americas. The library receives regularly more than 14,000 periodicals from Latin American countries. There is a large collection of maps both ancient and modern.

Other aids to study and research to be found in the Pan American Union are the large number of sample commodities collected in Latin America, and exhibited in the Pan American Union Building. These commodities consist of rubber, nitrate, hardwoods, minerals, emeralds, foodstuffs, and hundreds of other products that are being imported into the United States and other countries.

The Pan American Sanitary Bureau is a new field of useful service closely associated with the Pan American Union. While its work is not an integral part of the Union, the fact that by resolution of the International Sanitary Conference held in Montevideo, Uruguay, several years ago, it arranged for the establishment of the bureau in the Pan American

Union Building, makes it in a sense a part of the activities of the Union.

The Pan American Union is housed in one of the most beautiful buildings in the city of Washington. In its architecture it differs widely from any other building in the National Capital. Since 20 of the 21 American Republics are of Latin origin, the general style of the building fittingly suggests Latin American treatment. At the same time it harmonizes with the general tone of the architecture that is symbolical of the new Washington and which has found its latest exemplification in the Corcoran Gallery of Art, the Municipal Building, and the Union Station. The building is a monument to the munificence of Andrew Carnegie, who contributed three-fourths of the $1,100,000 required to build it, and to the energy of the Hon. John Barrett, a former Director General, who developed it. The remaining quarter of a million dollars was contributed by the 21 Republics forming the Union. The United States purchased the land for $250,000 and donated it.

The construction of this permanent home of the Pan American Union has made Washington an international capital of the 21 associated nations. The building was designed to be the home of the American Republics in the highest sense of the word. Every one of these Republics has its private home in the residence of its ambassador or minister, but the Pan American Union was designed to be the home of them all, where their representatives may meet to discuss all questions that may arise, to celebrate public events, or to commemorate glorious days. It was determined to make the building nearer the type of a residence than an impersonal public edifice.

In the grounds to the rear of the main structure is a beautiful sunken garden, in the center of which is a large pool flashing with many-hued fish from the southern seas, and surrounded by graceful flowering plants. This pool is presided over by a sculptured figure of the famous "Sad Indian"

of Aztec mythology. Forming an attractive background for the garden and pool is the Pan American Annex, with its three-arched loggia of brightly colored Aztec tiling. The tile effect is an effort to reproduce the best work of the earlier days of Latin America, the figures recalling the mythological period of the Aztecs and Incas. It gives an atmosphere to the entire setting that is suggestive of the sunny climes of our southern neighbors.

Latin American influence in the architecture of this remarkable and beautiful building finds its most typical expression in the patio, over 50 feet square, in the central part of the front section of the building. In this the visitor seems translated to some strange foreign scene, quaint and remote. Here the effect of tropical summer is maintained throughout the year. This large patio is covered with a glass roof, built in two sections, which are operated noiselessly by electricity and constructed so as to slide back over the adjacent flat roof of the staircase when it is desired to have the patio open.

Well-lighted offices for Director General L. S. Rowe and his staff open off the patio, and at one end is the great assembly chamber, which is called "the Hall of the Americas," the only room of its kind ever built especially for international conferences.

In the patio there is a large garden of everblooming tropical flowers, the fronds of great palms forming the graceful culmination of a diversity of exotic foliage and southern bloom. The fountain in the center flows all the year. It suggests the Alhambra and remote Moorish days in Spain. Well content with his home amid all this beauty and comfort, a great Brazilian macaw preens his vari-hued plumage of blue and red and gold, and screams a lusty welcome to the thousand visitors who greet him each day. He is quite a linguist and responds to salutations in either English or Spanish as the occasion demands.

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THE NATIONAL CAPITAL

No one who has lived in Washington will ever be wholly happy or wholly contented anywhere else. No visitor has ever departed from the city without a feeling of regret that his stay could not have been prolonged. Such are the tributes most frequently paid the Nation's Capital, a city not only of rare beauty, but one possessing in an even higher degree those attractions known as atmosphere and charm.

Washington is truly representative of the American people, save in that it is singularly free of commercialism and wholly free of industrialism. It is at once metropolitan and provincial, cosmopolitan and national. It is a city of magnificent public buildings, beautiful and impressive memorials, adequate hotels, modern business structures, palatial residences, imposing temples of worship, mammoth apartments, attractive city and country clubs, splendid universities, seminaries and public schools, inviting thoroughfares, and wonderful parks. It has wealth without overmuch ostentation and dignity without undue formality. It has its unattractive features, its drab and dingy sections; it has been described as an overgrown town loath to put on city ways, and in many respects it is true that it is a sector of the Main Street of the United States. On the whole, however, it is a superb realization of the dreams of Washington, Jefferson, L'Enfant, and the others who planned it.

Designated by Washington as the "Federal City," and so called until renamed by the three Commissioners appointed by the first President to govern it, Washington is unique

among the cities of the United States. In one sense it is the most American because its population is drawn from all the States, but in another sense it is not American at all because its residents can not vote. It is the most cosmopolitan because representatives of all other nations dwell in it, yet it has no foreign quarter. Washington's greatest industry is Government, and its greatest product is politics, but the issues are all national. It is the only American city where there is no local party politics. The President appoints the executive and judicial officers, and Congress makes all laws, levies all taxes, and decrees what funds shall be expended and how. A Senator and a Representative who may come from the farthest corners of the United States, but who happen to be the chairmen of the congressional committees on the affairs of the District of Columbia, have more to say about the fate of Washington than all the residents of the city put together. It is an anomalous spectacle—the people of the Capital City of a great democracy denied a voice in their own government.

Three Commissioners exercise the executive function in the District. They administer the details of Government, prepare the Budget, transmit it to the Secretary of the President, who, with such changes as he deems advisable, forwards it to Congress. Forty per cent of the expenses of the District are paid out of the United States Treasury and no taxes are levied on the extremely valuable property owned by the Federal Government. The rest of the funds required for the administration of the affairs of the city and the District are raised by taxes on real and personal property. It is not to be forgotten, however, that if every taxpayer in Washington wanted a tax levied and money expended for new schools, better streets, or any other public improvement, they could not bring this about except through petitions and prayers addressed to Congress.

Washington is the most beautiful city in the United States, and, indeed, is said by many authorities to have no

peer in the world. Paris has more magnificent vistas, but there are quarters of the French capital with never a claim to beauty. There are more shade trees in Washington than in any other city in the world. Paris, the next in the list, has 95,000, while Washington has almost 105,000. It should be remembered in this connection that Paris is a far older city and has a population of 3,000,000. Washington dates back a century and a quarter, but its real development and beautification did not begin until after 1870. Its population is but 450,000.

The city has 490 parks. There are 10 large parks in the central portion of the city, one of the largest being the Mall, extending from the Botanic Garden at the foot of Capitol Hill to the Washington Monument. However, the crowning glory of the Washington park system is to be found in Rock Creek Park and the Zoological Park, which are practically one, with a total area of 1,776 acres. Rock Creek is not excelled in beauty by any park in the world.

A strip of reclaimed marsh land has become Potomac Park, the public playground of Washington, and now known as the most complete public country club in existence. On the 723 acres of park space there are tennis courts, golf courses, baseball diamonds, and fields for football, polo, and cricket. There are 10 or 12 miles of bridle paths, 8 miles of speedway, and a bathing beach, where 400,000 dips are taken every year. Government bands play in Potomac Park on summer evenings and in the open season an average of 200 automobiles are parked in the tourist camp here every night. The most picturesque views of the city are obtained from the riverside speedway, with its borders of flowers, weeping willows, and Japanese cherry trees.

The United States Soldiers' Home is set in another park which overlooks the city from a different angle. This Government institution is self-supporting and has never had an appropriation from Congress for maintenance. Its 500 acres include not only beautifully wooded grounds, but also an

efficiently managed farm with fine herds and well-tilled fields. A feature of the home is a building popularly known as the President's Cottage because Abraham Lincoln spent some time in it, and because it is available to Presidents as an official summer White House.

Washington has a greater number of institutions of learning than any other city. Universities, training schools, finishing schools, professional schools, and preparatory schools are supplemented by an excellent public school system, which was started in 1805. The wealthier citizens at that time subscribed the funds from their private purses, but opened the schools to all. Thomas Jefferson, then President of the United States, was chosen a member of the board of education and became its first president.

The Library of Congress, the Smithsonian Institution, the Carnegie Institute, the scientific bureaus of the Government, and the other great libraries and museums add immeasurably to the educational opportunities afforded in Washington. Scientists are attracted to the city from all parts of the world, and there are more men actually engaged in scientific research there than in any other city in this or any other country. The telegraph and the telephone are among the many important inventions that have come from the laboratories and workshops of Washington scientists.

Washington is as famous for its learned societies as for its clubs. The most widely known of these is the National Geographic Society, which, with its membership of 800,000, is the largest educational and scientific body in the world. The society has for its sole object—the "increase and diffusion of geographic knowledge." To carry out this purpose, its expeditions have invaded the ice barriers of the Arctic and penetrated the humid jungles of the Tropics; they have peered into mighty volcano craters and searched all lands for tiny fragments of long-lost traces of prehistoric animal and human habitation. Peary planted the National Geographic Society flag with the Stars and Stripes at the

North Pole. One of its expeditions uncovered the hanging gardens, original home of the humble potato, in Incaland, Peru. Another, while studying the effects of giant Katmai's eruption, in Alaska, literally followed a pillar of smoke one day and discovered the vast Valley of Ten Thousand Smokes, America's new wonderland and future national park. The society performed a notable national service when, following the war, the schools were without textbooks or references which gave any inkling of new places, boundaries, or nationalities. It sent out weekly a series of bulletins to teachers which gave them the background of the history and geography in the day's news. The Government, recognizing the need of such material, cooperated through the United States Bureau of Education, by franking out these bulletins to more than 70,000 teachers.

The population of Washington includes some 110,000 negroes. Among its prominent colored citizens are Emmett J. Scott, former special assistant to the Secretary of War; May H. Jackson, a sculptress and artist of note; and Ernest Just, who has won recognition as a zoologist. The colored inhabitants have their own public schools, hospitals, churches, theaters, and business establishments. Thousands of them are employed by the Federal and District governments, and they have representation on the local board of education. Higher education is represented by Howard University which has such good standing that it attracts colored students from 36 States and 10 countries. The Howard Medical School is included in the Class A medical schools of the country. A unique private school is that conducted by Nannie H. Burroughs, who specializes in practical education for colored girls. Every girl in the Burroughs school, regardless of whether or not she is taking a domestic science course, scrubs floors, washes dishes, and takes care of her room. One of the school buildings is a model bungalow where students practice housekeeping, acting in turn as hostess, cook, and maid.

It takes an adept and an athlete to tread the mazes and

keep the pace of Washington society when the season is at its height. As the social life of the city is essentially official, questions of precedence are of prime importance and bewildering in their ramifications, while the number of luncheons, teas, dinners, dances, and receptions staggers the neophytes and wrings groans even from the veterans. Social activities, naturally, center in the White House, which is the scene of numerous splendid functions, the more notable being the state dinners and receptions which the President and the First Lady of the Land give in honor of the Diplomatic Corps, the Congress, the Supreme Court, and the Army and Navy. Thousands of guests attend the formal levees, which present brilliant and colorful pictures such as are known elsewhere only in the larger capitals of Europe. There is a great scramble for invitations to these affairs which are the only counterpart in this country of the presentations at court abroad.

Social rivalries are intense and the society pages are distinct features of the Washington newspapers. Wealthy Americans who have no connection whatever with the business of Government, and who are only indirectly interested in politics, flock to the city and maintain magnificent mansions which they occupy only during the winter season when they entertain lavishly. Money is not the only key that unlocks the gates to Washington, however, for breeding and refinement are recognized and welcomed, and many people of modest means are attracted to the Capital because of its close contacts with all important national and international affairs, its atmosphere of culture, and the educational advantages which it affords the younger generation.

Many of the beautiful buildings of Washington are embassies. Twelve of the great countries of the world sent ambassadors to the United States, and in addition there are 34 legations in which representatives of foreign Governments are established. Many of the more notable of the diplomatic homes are located in Sixteenth Street, which

opens up a wonderful vista northward from the White House and Lafayette Square. Lining this great thoroughfare, which was once called the Avenue of the Presidents, are the memorials to the District dead in the World War, and at its far end is the great military hospital where thousands of the Nation's heroes have fought a winning or losing battle for life and health.

Washington hotels and boarding houses—pensions, they would be in Paris—are characteristic. They are parceled out, in a fashion, among the States. A man from Maine will go to a hotel where he will find other people from Maine. Another hostelry is sacred to the Army and Navy, but Tennesseans also have made it their headquarters for years. Another has the atmosphere of the Middle West and still another is the rendezvous of New Yorkers, with a sprinkling of diplomats. And so it is with the boarding houses. A landlady who features cornbread and hot biscuits will have a Southern clientele, while the fame of an establishment where brown bread and beans may be had, flanking the sacred cod, will attract the Bostonian. In some boarding houses there are State tables, all the guests from Georgia being grouped around one, all the Kentuckians at another, and so on. This is the last surviving reminder of the congressional "messes" of the early days of the Capital City.

The clubs of Washington are an important feature of its life. The Metropolitan is one of the oldest and most exclusive and has long been the gathering place of men notable in national and world affairs. The Cosmos Club is the largest scientific club in the world. Its membership includes literateurs and the greatest inventors and investigators of the scientific world. Its fine old home, once owned and occupied by Dolly Madison, is the social clearing house of the Smithsonian Institution and the Carnegie Institute. The Chevy Chase, Columbia, and Congressional Country Clubs are brilliant socially, and the Army and Navy Club is a distinctive organization. The City Club has commodious new

quarters in G Street, the University Club a beautiful home fronting on McPherson Place, and the Racquet Club graces Sixteenth Street. The wives of Members of Congress have a club house of their own in New Hampshire Avenue, and there are several other exclusively feminine organizations. The National Press Club is the representative newspaper club of the world. Its membership is the most cosmopolitan and its influence the most extensive of any similar organization in existence.

Washington has not always been the beautiful Capital, the political center, and the social mecca that it is to-day. In the beginning, little attention was paid to the needs of the District. Congress refused to appropriate funds to erect public buildings, and the Commissioners were forced to borrow from the States, Virginia loaning $120,000 and Maryland $72,000. Congress again declining to vote money, Maryland let the new National Capital have an additional $100,000, but only on the personal security of the Commissioners. In those days the public credit was poor indeed. The Union was only an experiment and the Constitution was an untried and sorely mistrusted instrument. Few men thought that the States would stick together. When Jefferson was President he offered to give a fine building square in Sixteenth Street, near the White House, to any European nation that would erect a legation building. None of the nations of the world believed that the United States would amount to enough to justify the building of a legation at Washington, and the offer was not accepted.

Rivalry between the North and the South was marked in those early days and the question of the location of the Federal District was debated with heat and earnestness. The Northern States in Congress, led by Alexander Hamilton, favored the assumption of the Revolutionary War debts of the States by the Federal Government. The Southern States opposed this. Jefferson and Hamilton met on the street and the latter appealed for aid in passing the assumption bill.

Jefferson gave a dinner, and at the table it was agreed that a sufficient number of Southern Congressmen would vote for the bill if a sufficient number of Hamilton's followers would agree to the location of the Federal District in the South. The compromise was put through and Congress directed that a seat of government be selected on the banks of the Potomac. The State of Maryland ceded 70 square miles and Virginia gave 30 square miles to form the District. In 1846 the Virginia portion, which included the town of Alexandria, was given back to the State, and the District was reduced to its present area, all on the Maryland side of the Potomac.

Alexander R. Shepherd, a plumber by trade, first a member of the board of public works of the District and then its governor, was the moving spirit in the new government under the reorganization acts of 1871. If Washington was the founder, Shepherd may be said to have been the builder of the Capital City. He found it a straggling town without a comprehensive system of public improvements and he left it well started on its way toward being the most beautiful city in the world. Disregarding the protests of citizens he tore away an unsightly market house and made a park space. He filled in the miasmatic open sewer that had been the canal of earlier days and turned the water of Tiber Creek into a great sewer. In less than two years he paved 40 miles of streets with wood and 50 miles with gravel. He laid 13 miles of sewers and 14 miles of water mains. The wooden pavements proved a failure and soon had to be replaced with asphalt, but once there was a pavement the people would not consent to return to the mud lanes that had disgraced the Capital so many years.

The oldest residence in the city of Washington, the one which has housed most of the men who have given America its storied past, and which is still bound up in our dreams of a glorious future, is the White House. When it was provided for in the original plans for the city it was known as The Palace. After it was burned by the British in 1814 it was

painted white, and in popular parlance was soon called by its now familiar name, although officially it was known as The Executive Mansion until Theodore Roosevelt became its occupant. The White House it is now, and ever shall be, for there is so much of history and legend in the old name that it will always be retained.

James Hoban, a native of Ireland, but then a resident of South Carolina, won the competition and prize of $500 offered during the third year of Washington's administration for the best design for a house for the President. His plans copied closely the design of the house of the Duke of Leinster in Dublin. Originally he planned a three-story structure, susceptible of being extended by wings and colonnades. President Washington liked the idea, but the public was aghast at such magnificence, whereupon the plans were simplified and the well-known two-story building of a few rooms was the result. The corner stone was laid by Washington in 1792 and the house was completed in 1799. It was first occupied by President John Adams in 1800, and his good wife Abigail hung out the family washing in the East Room. Every President since Adams has lived there, and had his office there, until Roosevelt had an office building added at the end of the west wing.

Burned by the British troops under Ross, the White House was rebuilt without alteration, except that the scorched and smoked sandstone was painted. During General Jackson's administration the northern portico, the one oftenest seen in pictures, was added. No other important changes were made until Roosevelt's time, when half a million dollars were expended in improvements.

When President Washington selected the site of the Capital City, he had no difficulty in persuading 18 of the landowners to turn over half their property to the Government in consideration of the enhancement of the value of that half retained by them. But with Davy Burns, a canny Scot, who owned a farm where the White House and Monument

are situated, it was different. Washington argued with Davy long and earnestly. At last he said: "Had not the Federal City been laid out here you would have died a poor tobacco planter." Whereat the son of Caledonia retorted, "Aye mon, an' hed ye no marrit the Widow Custis, wi' a' her nagurs, ye'd hae been a land surveyor the noo, an' a mighty puir ane at that!" When Davy wouldn't, Washington told him he must, and he consented finally, but with characteristic Scotch thrift insisted upon a proviso that the site of his own cottage could not be taken and that no lots should be sold for private buildings in that vicinity.

Of the many memorials to former Presidents of the United States to be found in Washington, those to the memory of Washington and Lincoln predominate. The Washington Monument, an austere shaft towering 555 feet, is the outstanding memorial to the first President. It contains a piece of stone from a quarry of every State in the Union. The Capitol and other public buildings of the city are prolific with pictures, statues, and busts of the first President. Foremost among these is the replica in bronze of the famous Houden statue of Washington in Statuary Hall. To Lincoln's memory there has been reared a marvelous marble structure, with façades of Grecian columns, one dedicated to each State. This memorial, erected on the banks of the Potomac near the Washington Monument, is a magnificent tribute to the great emancipator. A marble statue of Lincoln by Daniel Chester French is the only piece of statuary in the memorial, but there are many other statues of the martyred President in Washington. The house in which he died, situated just across the street from Ford's Theater where he was shot by Booth, is maintained as a museum and contains hundreds of relics of Lincoln.

Characteristic of Washington's setting a standard for other cities is the time ball on the great building which houses the State and War Departments. Every day this huge ball, which fits on a shaft similar to a flagpole, is raised

a few minutes before 12 o'clock and exactly on the stroke it drops.

Adjacent to Washington are many interesting places which are inseparably linked with the city, such as Mount Vernon, the home and tomb of George Washington, and Arlington, the National Cemetery of military and naval heroes, with its beautiful amphitheater and the tomb of the Unknown Soldier. Arlington includes the former home of Gen. Robert E. Lee, and near by is Fort Myer, a famous Army post, where the airplane invented by the Wright brothers was tried out. These places may be reached by the new Key Bridge which crosses the Potomac from Georgetown, the bridge being a beautiful as well as utilitarian memorial to the author of "The Star-Spangled Banner."

In another direction are the earthworks that date back to the War of 1812, and in still another is the fort where the battle was waged that saved the Capital during the Civil War. Up the Potomac are the Great Falls and the bridge that once bore the name of Jefferson Davis only to have it erased and then replaced after the elapse of years when sectional bitterness had been forgotten. Down the historic stream are the forts that were built to guard Washington against attack from the sea.

Just before the Civil War a writer in the Atlantic Monthly said: "Washington is the Elysium of oddities, the Limbo of absurdities, an imbroglio of ludicrous anomalies. Planned on a scale of surpassing grandeur, its architectural execution is almost contemptible. It has a Monument that will never be finished, a Capitol that lacks a dome, and a Scientific Institute which does nothing but report the rise and fall of the thermometer." Of such is the spirit of carping criticism! What a disappointment it would be to that dismal prophet to visit the Capital City to-day and what a joy and satisfaction to Washington, and L'Enfant, and those other builders. Theirs was the vision, the Nation and the Capital are the dream fulfilled!

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